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MOTOR AGE

SOUTH'S HEART PIERCED BY MOTOR TRAIL

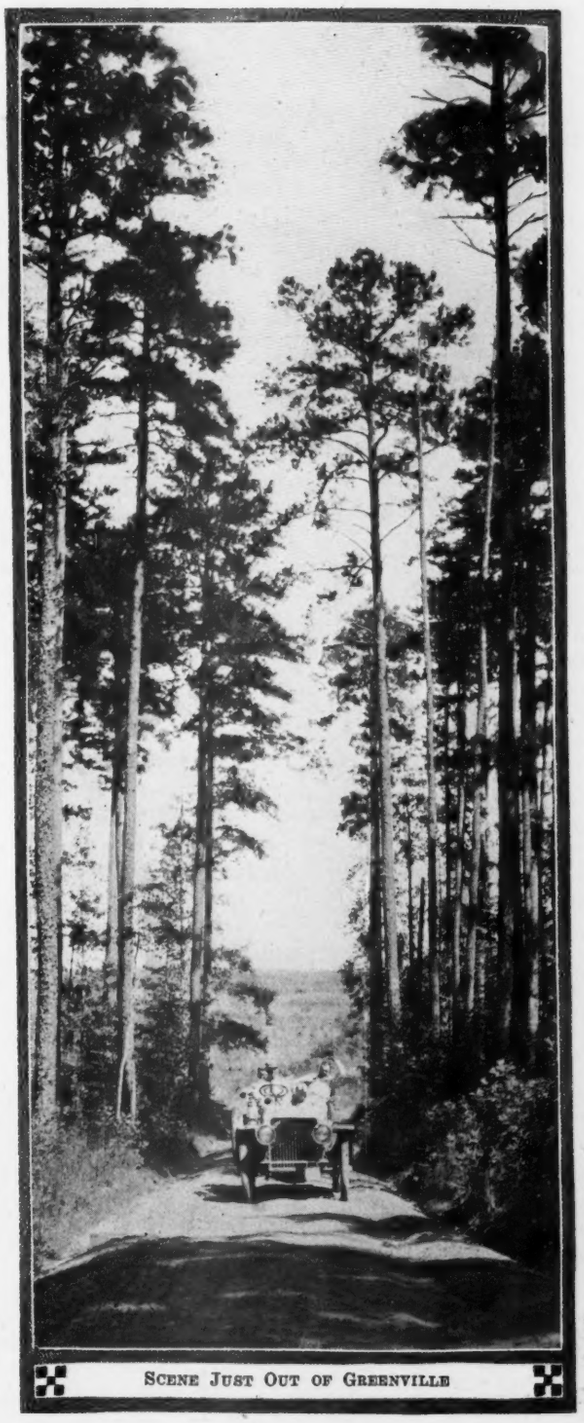
By Pathfinder

ATLANTA, GA., Oct. 18.—To say the south is ablaze with motoring enthusiasm is putting it mildly. The big speedway has been completed and will be ready for the opening meet, which will take place during show week. All the space for the south's first national show has been sold and plans for the series of reliability runs, which will make this city their mecca, are well under way. Nearly every little town, village and city within a radius of 100 miles of Atlanta will promote runs to Atlanta at show time, while the big affair in this line will be the New York-Atlanta reliability, which will follow the new national highway and at the same time show the need of good roads. This run will not have very strict rules, it is true, the main idea being to get into the controls on schedule time, but it will well serve its purpose and stir up enthusiasm in the highways if the pathfinding trips are any criterion.

Route-Finding Completed

The laying out the New York-to-Atlanta highway has been completed after a thorough examination of all the possible routes. Careful road directions have been compiled by the writer, more than 2,000 sign-boards have been placed along the roads and all now is in readiness for the first touring contest between north and south which, commencing on the 25th of this month, will inaugurate the trail.

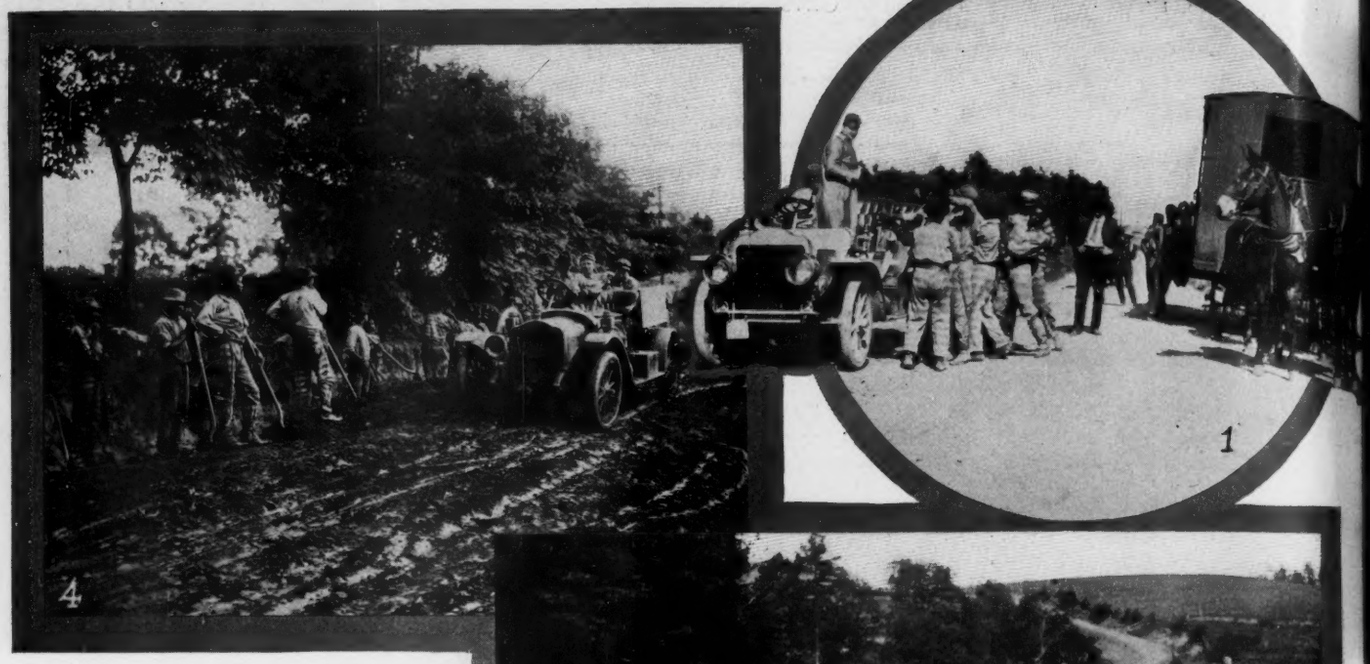
It was by no means an easy task for the promoters of the national highway—the New York Herald and the Atlanta Journal—to select the route. For other important tours held in this country fairly definite data as to the best roads have been available and the only requisite has been to send a pathfinding car over the established route to compile specific road directions. But no sooner had the two newspapers announced their scheme of a New York-to-Atlanta highway, when advocates of different routes started to overwhelm them with conflicting claims. Obviously there was but one way to decide which route was the best—namely, by actually testing each of them. To that end a White steamer during the summer months made three trips of inspection between New York and Atlanta, covering as many different routes. The first trip was over the Shenandoah valley-Southern railroad route; the second trip was over the capital-to-capital route via Washington, Richmond, Raleigh and Columbia; and the route covered on the third trip coincided with the first as far south as Roanoke and then turned southwesterly through a section of eastern Tennessee but little known, by way of Bristol, Knoxville and Chattanooga.



SCENE JUST OUT OF GREENVILLE

Laying Out the Route

Those who made the three scouting trips were unanimous in the decision that the first route is the best, and accordingly the pathfinders on their recent trip covered for the most part the same roads as were followed on the first trip of exploration except that between Roanoke and Charlotte an entirely new route was marked out via Rocky Mount, Martinsville, Winston-Salem, Greensboro and Thomasville. The accompanying map shows the national highway as finally determined upon. Inasmuch as the pathfinders traveled over many miles of road which they had covered 4 months before, they were able to see the tremendous improvement which had taken place in the interval, this improvement being due in no small measure to the active propaganda which has been carried on by the New York Herald and Atlanta Journal. A case in point is that of York, Pa. When the scout car passed through this prosperous city last May the main street was full of holes and ruts and compared but poorly with the macadam pikes which lead from that city out into the farming districts. The city was properly roasted by the press and even in the editorial



4—Convicts Working on Road

2—Road to Belleyach, Va.

1—Tobacco Wagon on Road
3—Through the Cotton Fields

column. The outcome of the agitation was that the city voted an appropriation to pave the main street. When the pathfinders went through York 2 weeks ago they found as fine a brick pavement as could be desired.

While driving the pathfinding car between Staunton and Roanoke the writer found it necessary several times to alter his road directions to read, "Cross iron bridge over creek" to replace a reading of "Ford creek," which he had made on the trip last May.

Winston-Salem Enthused

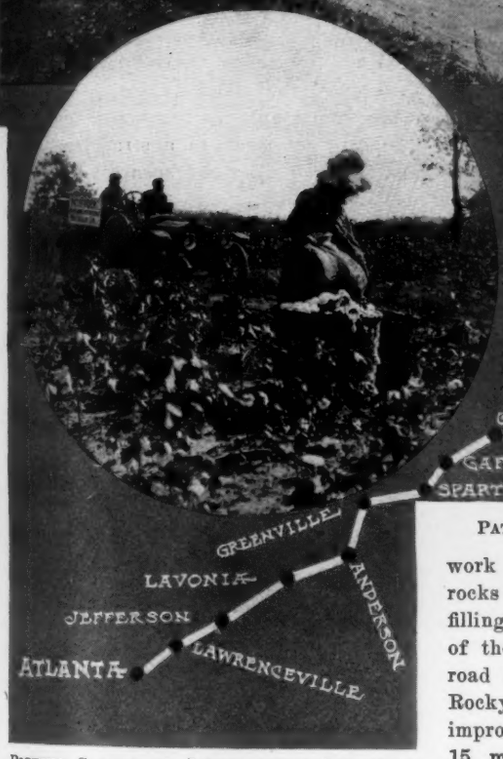
And now a few words about what is being done on the roads between Roanoke, Va., and Winston-Salem, as the narrative will illustrate how far-reaching have been the results of the recent good roads campaign. Winston-Salem was not visited on any of the three scouting trips and it looked to the citizens of that thriving community as if the rival town of Greensboro, 35 miles away, was to wrest away the honor of being on the national highway. "Why are we left out?" inquired indignant Winston-Salem of the promoters of the enterprise. "Because the roads from Roanoke to your city are the worst ever," was the reply. "Then we will fix them," rejoined Winston-Salem. Then was presented a spectacle which it is believed has no precedent. A mass meeting was held in Winston-Salem at which, amidst great enthusiasm, several thousand dollars were subscribed by private parties to be spent on the roads of another state. But that was not all Winston-Salem did in its eagerness to be on the national highway. It was pointed out that, even if the road leading south from Roanoke was improved, it might still be possible that the route would go to Greensboro direct and leave Winston-Salem out. "Well, we will fix that too," said Winston-Salem. Accordingly the town officials got busy and started construction work on 3 miles of entirely new road, thus building a cut-off which makes Winston-Salem logically and naturally on the New York-to-Atlanta highway.

Fairly good roads are found almost all the way from New York to Roanoke, but it is probable that those who take part in this month's big New York-to-Atlanta tour will not soon forget the 60 miles of mountainous roads south of Roanoke. The difficulties of the road may be judged from the fact that, although a large delegation of motorists drove out to meet the party on its way into Roanoke, not a single driver was willing to show the way south from Roanoke the next day. However, the president of the Roanoke Automobile Club, J. H. Marsteller, kindly offered to act as pilot. Mr. Marsteller is the most active motorist in that section, and yet he had never driven southward over the road leading from Roanoke. However, he had traveled from the south into Roanoke and his knowledge of the road was useful.

From Roanoke to Rocky Mount

The first stretch of 28 miles, from Roanoke to Rocky Mount, required 2 hours and 40 minutes for the scout car to negotiate. Perhaps 15 minutes of this time

ROUTE OF NATIONAL HIGHWAY



PICKING COTTON IN SOUTH, WITH SCOUTS IN BACKGROUND

was spent in taking photographs and inquiring the way, but the balance of the time the car was going as fast a pace as the road would stand. It is uphill and downhill—up and down without cessation. The road twists and winds around the mountainsides so one can rarely see what awaits him 50 feet ahead. The turns are very sharp and one comes unexpectedly to short grades as steep as any on Giant's Despair at Wilkes-Barre. Add to this that the road is rough and rocky, and one can understand why not more than 11 miles an hour was averaged. The wonder is, not that the road in this section is so bad, but that it is as good as it is, for the country is almost entirely deserted. There are no farms, no pastures and no traffic. It is on this stretch of road that the money raised in the North Carolina city of Winston-Salem is to be spent. Already some

PATHFINDING WHITE NEAR MIDAY, VA.

work has been done in leveling off the rocks which project into the road and in filling up some of the holes. By the end of the month it may be a fairly decent road over which to drive a car. From Rocky Mount to Martinsville conditions improve somewhat so that a schedule of 15 miles an hour may be suitable for the large cars in this month's tour.

North Carolina has been leading the new south in the building of good roads. There are numerous fine straight-away stretches of flawless macadam where for miles at a time one may drive a car at its maximum speed without any fear of accident, as cross-roads are few and traffic is light.

South Carolina has been doing wonders during the last few months in improving its dirt roads, which are the prevailing type in this state. The roads are for the most part smooth, well-graded and without sharp turns. In dry weather splendid time can be made in crossing this state; in wet weather the tourist had better provide himself with three or four sets of tire chains and postpone his other engagements.

Georgia the pathfinders found to be literally torn up by gangs of convicts engaged in resurfacing the road. The counties are vieing with one another in bonding themselves to build new highways, and the good roads enthusiast may say of this state, "Not yet, but soon."

The trip of the pathfinding cars was of interest, even aside from the good roads point of view. The White gasoline car was selected by the Atlanta Journal to cover the southern end of the route. It ran to Martinsville, Va., where it met the New York Herald's car, and from that point the two proceeded southward together. The start was made from Herald square on September 23 and Atlanta was reached on September 30. The first stages of the trip were made on an easy schedule, the first night's stop being at Philadelphia and the second at Gettysburg. But the schedule maintained on the last half of the trip—from Roanoke to Winston-Salem on the fifth day; to Charlotte on the sixth day; to Anderson, S. C., on the seventh day, and to Atlanta on the eighth day—has never been equaled.

Many Cars Are Entered

At the present writing thirty-seven cars have been entered for the tour. A noteworthy feature of the entry list is that more than two-thirds of the cars have been entered by private owners from the south. Some of these latter entries are to represent the boards of trade or chambers of commerce of various cities along the line, which are greatly interested.

MULFORD, PATSCHKE AND MRS. MULFORD

RECORD OF BRIGHTON BEACH 24-HOUR RACE, RUN OCTOBER

No.	Car	Drivers	1	2	3	4	5	6	7
	Previous	Record	55	107	158	211	265	305	356
3	Lozier	Mulford—Patschke	48	103	152	207	257	309	353
4	Lozier	Seymour—Cobe	52	106	155	206	262	308	357
9	Rainier	Disbrow—Lund	42	87	139	185	230	278	326
5	Buick	Burman—Hughes—L. Chevrolet	56	114	167	208	262	318	362
10	Marion	Strang—James—Flanagan	47	96	141	189	232	269	297
11	Matheson	Basle—Whalen	39	96	146	195	239	288	339
6	Buick	L. Chevrolet—A. Chevrolet	56	114	164	217	267	321	372
8	Rainier	Owen—Bowers	52	107	155	210	261	310	353
2	Palmer-Singer	Howard—Knipper—Lescault	53	107	153	203	222	222	228

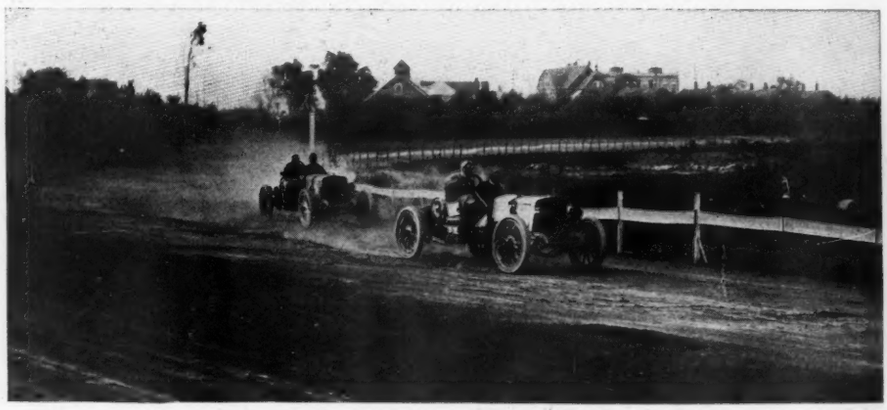
Leader at each hour denoted by distance set in blackface type

Lozier One, Two in Brighton Beach

NEW YORK, Oct. 18—The competitive record for a 24-hour circular track race, which stood at 1,177 miles, made by Robertson and Lescault in a Simplex a year ago, was smashed in the twice-around-the-clock grind which was run at Brighton Beach track Friday and Saturday of last week, the mark being raised to 1,196 miles by Mulford and Patschke in a Lozier. Cobe and Seymour in the other Lozier traveled 1,169 miles and excelled anything previously done on the Brighton track this year. A new slate was hung up, all previous hour marks save the sixteenth and seventeenth being changed. Chevrolet in a Buick figured prominently for half the way, and the 624 miles he made in the first 12 hours beat the 613 of Strang in a Renault a year ago.

Contrary to precedent, the third and last 24-hour race held by the Motor Racing Association this season brought forth fast time and small attendance. Usually the Brighton events, while in the nature of processions, have been watched by a large though disgusted crowd, which stayed to the bitter end because it had paid good money to get in. This time—perhaps because of the cold weather—the crowd remained at home, while the racers proceeded to demolish the American records. The fast time was due largely to the improved condition of the track, which at last has acquired a reasonably smooth surface. As for the results, Lozier has added another to its string of victories in these events, carrying off both first and second places.

Nine of the eleven entries appeared at the starting line, which was graced by the presence of Dr. Frederick A. Cook, of Arctic fame. Dr. Cook, as had been widely advertised, acted as starter, after having been instructed in the mysteries of the art. About 300 cars were in the parking spaces, and the grand stand was scatteringly occupied. Cobe started his Lozier and rushed down to the first turn. He stopped on seeing his mistake, but before he could return to the starting line Dr. Cook fired the pistol. Cobe joined the other contestants as they reached him. The cars got away to a straggling start and before 5 miles had been covered were strung out all the way around the track.

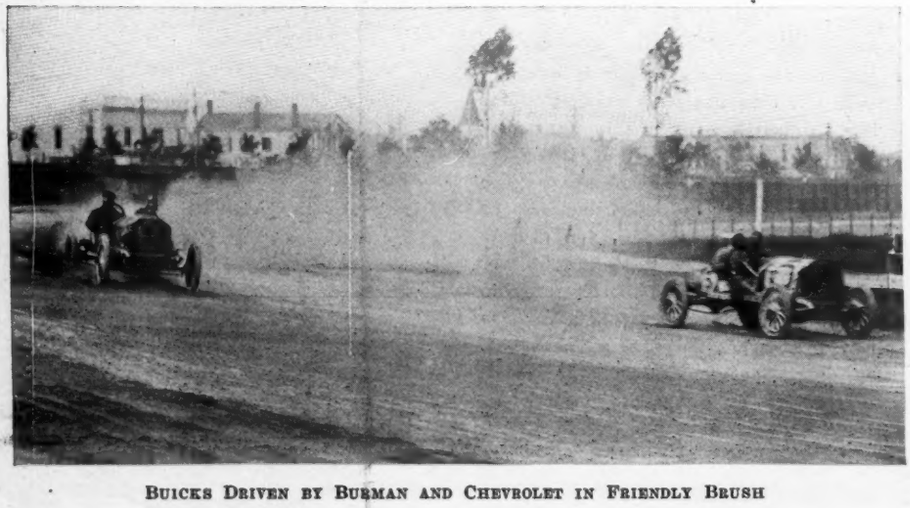


THE TWO LOZIERS HOLDING A STEADY PACE

The lead was at first taken by Chevrolet and his Buick. Then the Palmer-Singer, with Howard at the wheel, gradually worked ahead and held the lead until the twenty-fifth mile, when Chevrolet again got ahead. The Buick driver kept up his fast pace until he had set new records for 1 and 2 hours. Burman with the second Buick was now in second place and soon after succeeded in passing his team-mate and himself making the record for the third hour. Chevrolet had trouble and dropped behind far enough to let Seymour and the Lozier slip into second place.

Cobe Hit by Tire

The first accident occurred before the completion of the first hour. As Cobe drove his Lozier into the homestretch a rear tire flew off and struck him on the head. Cobe was half stunned, but kept control. Seymour took his place after the car had lost nearly a lap. Soon after midnight the Palmer-Singer got into trouble. As this car, with Lescault at the wheel, was running the turn into the home stretch



BUICKS DRIVEN BY BURMAN AND CHEVROLET IN FRIENDLY BRUSH

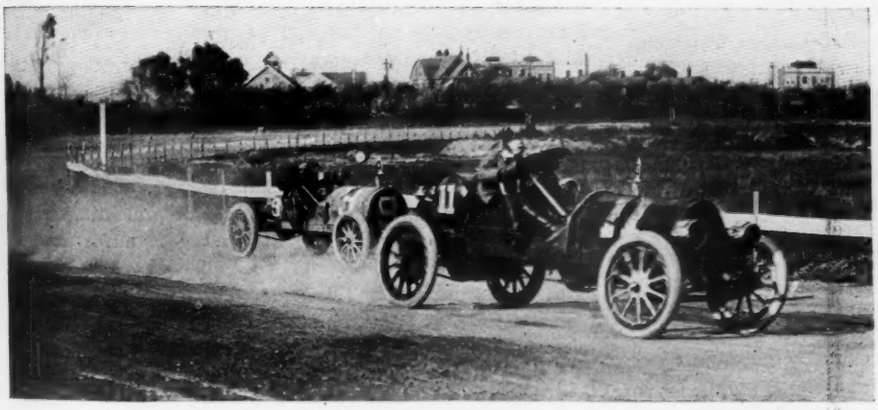
15-16 AND WON BY MULFORD AND PATSCHKE IN LOZIER

8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
408	455	508	559	613	658	710	761	810	857	903	949	992	1041	1086	1131	1177
403	454	507	560	612	652	703	752	802	853	904	951	1001	1050	1096	1145	1196
409	461	511	563	610	664	712	763	808	833	883	920	977	1027	1072	1120	1169
391	427	480	529	578	623	670	716	759	808	848	890	937	985	1028	1070	1115
401	447	495	540	593	624	679	731	774	809	842	889	924	969	980	1012	1064
319	326	353	380	415	460	496	544	583	620	662	704	742	782	814	859	904
355	355	355	396	438	482	529	572	619	630	670	709	745	796	837	874	891
422	472	523	570	624	647	668	719	764	Brok	en st	eerin	g kn	uckle	.....	.....	.....
399	449	496	546	546	546	Thro	ugh	fence	.....	.....	.....	.....	.....	.....	.....	.....
279	319	359	359	359	359	Burn	t-out	bear	ing ..	.....	.....	.....	.....	.....	.....	.....

24-Hour Race, Breaking the Record

its front wheel came off and hurtled into a group of spectators. It struck Miss Alice Roberson, of Brooklyn, fracturing her collar-bone. Lescault handled the car well and brought it to a stop without any further serious results. It resumed racing as soon as another wheel was put on.

after noon the steering gear of Lozier No. 4 went wrong and the driver had to ditch the car to escape a collision. Little damage was done and the Lozier was soon back on the track. About the same time James, driving the Marion, took the far turn so fast that his car skidded and



MATHESON AND RAINIER, WHICH FINISHED WITH HONORS

The Rainier company for this race had placed its two star drivers, Disbrow and Lund, on the same car, and had entrusted its second entry to Wally Owen and Charles Bowers. At 6:45 in the morning the Rainier's right rear tire burst on the clubhouse turn and the car went through the fence, turning over twice. After Bowers had been removed to the Kings county hospital it was found that he had sustained a fractured skull. He probably will recover. The mechanic, Hause, was shaken up but not badly hurt. The car had to be withdrawn.

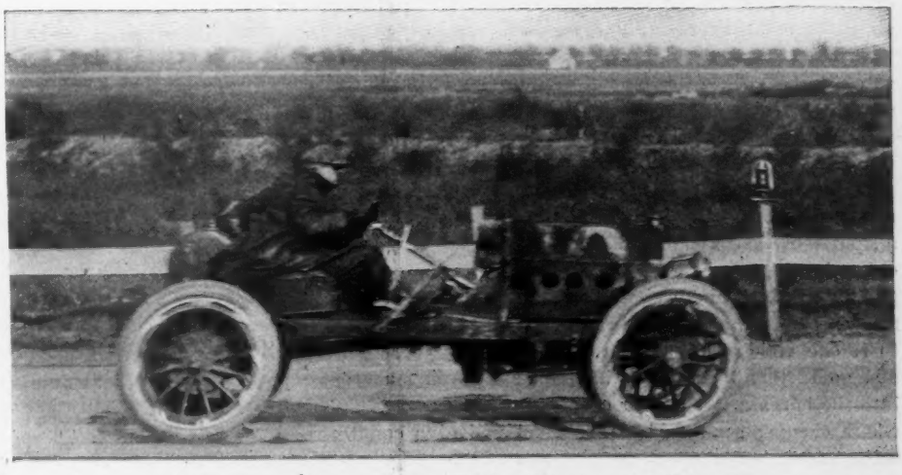
New 12-Hour Record Made

Louis Chevrolet began to have his troubles soon after establishing a record for 12 hours. At 10:45 in the morning his rear axle snapped and the frame was bent by the resulting shock. Repairs were made, but about an hour later Louis' brother Arthur, who had taken the wheel, went through the clubhouse fence and struck a tree. Driver and mechanic were hurled 2[illegible] feet through the air, but escaped injury. The car was wrecked. A little after noon the steering gear of Lozier No. 4 went wrong and the driver had to ditch the car to escape a collision. Little damage was done and the Lozier was soon back on the track. About the same time James, driving the Marion, took the far turn so fast that his car skidded and turned completely around. The officials decided he was incompetent to drive and put a man named Flanagan in his place.

A special price of $200 had been offered for the best mileage during the last hour, and in spite of the biting wind that swept in from the ocean a couple of thousand spectators turned out to watch developments. The prize fell to Lozier No. 3, which made 51.5 miles.

Ralph Mulford, one of the winning pilots, was married Friday just before the race started. The wedding day had been fixed at the time the race was scheduled for September 24 and when the race was postponed he refused to change the date of the happy event.

DR. COOK, WHO STARTED THE RACE



MARION, DRIVEN BY STRANG, WHICH WENT TO THE FINISH

BRAZIER CUP NOW FLETCHER'S

Philadelphia, Pa., Oct. 16—The Automobile Club of Philadelphia's Brazier cup contest had its seventh annual renewal this afternoon and G. B. Fletcher was registered as the winner for the third time in the series, thus gaining perpetual possession of the cup—and he carried "No. 13" on his Packard at that. By a strange coincidence his car had 13 points' penalty scored against it. C. Yarnall Abbott's Pennsylvania was second, with the talismanic total of 23 demerits; Alan Wood, 3d, captured third place with his Pope-Toledo, which suffered penalization to the extent of 28½ points, while W. C. Longstreth finished fourth, his Pullman being penalized 39½ points. The affair was termed a legal speed limit run, and besides being timed at start and finish, there were several places along the 65-mile route where checkers were secreted.

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Stampings Facilitate Manufacture

THE present difficulty that many motor car manufacturers are experiencing in securing parts such as frames, axle forgings and many stamped parts is fathering the trend of makers adding stamping and forging departments to their factories, so that in the future many of the parts heretofore bought from specialty manufacturers will be manufactured in the home factory of the car builder. Today not a few of the biggest car makers are building foundries where they hope to make all of the cylinder castings, and a big percentage of them have for years had aluminum and brass foundries where they have made all of their small castings. In the last 2 years small forging plants have been added to many factories.

BY far one of the biggest movements at present taking root in the industry is the trend towards manufacturing stamped parts. Stampings are today rapidly taking the place of forgings and castings. Expanding brake shoes, generally castings which have to be machined and worked up, are now being made of stampings which are more than 50 per cent lighter than the finished castings and much stronger, besides being much cheaper to manufacture. Cones for cone clutches can be made equally as well by stamping as casting. Differential housings for rear axles, brackets for supporting steering gears, cups for cup-and-cone ball-bearings, lower parts of crankcases and a score of other parts about a car can be manufactured much cheaper from stampings than by the casting or forging process.

THE value of casting in the motor car was first noted a year ago or more when several of the foreign makers introduced stampings for rear axle housings, torsion tubes, parts of the gear-box, portions of the crankcase and other parts. The intricate forms of many castings showed the prolific possibilities of the field by way of lightening the machines, cheapening manufacture and also quickening manufacturing. This advent of the stamping era in car manufacture was but a resurrection of the dry bones of bicycle days when the use of stampings to no small extent revolutionized the manufacture of the bicycle and made it possible for certain makers to sell bicycles for almost one-third of their competitors' price and yet build machines that stood up. Several car makers have for some time been discussing the possibilities of using stampings in cars, one citing the fact that with hubs stamped out they can be manufactured over ten times as cheaply as the forged type that has to be machined down to shape at great expense. It is a fact that today some makers are using expensive chrome nickel forgings where ordinary stampings would serve equally well. The present rivalry in the production of low-priced cars is doing much to engender in designers that nicety of proportion so essential in car design, namely, trimming all parts to their required strength, size and weight, cutting out expensive parts where cheaper ones will suffice equally well and adding strength and weight where they are needed. This trimming problem is a big one in the car field. By giving due regard to it one maker is enabled to build a better car than his rival and go further by underselling him and having a greater profit into the bargain. It is poor economy to use expensive alloy steels where cheaper grades of carbon steel will give equally good results, and it is foolish to use castings and forgings where stampings can be made use of.

Does Road Racing Pay?

AMERICA has this year been closely studying the problem as to whether the racing of motor cars in road races and specially prepared motordromes pays, and before this many of the manufacturers, who have entered contests of this nature, for the first time this year are convinced that racing pays. One conservative, central-state manufacturer, whose cars made a particularly valuable performance in the Indianapolis speedway events, has unhesitatingly declared the value of such contests as car-sellers. Two or three other concerns have stated the same results, so that as far as many American makers are concerned it is an acknowledged fact that racing, if properly conducted and on proper courses, is a success from the manufacturer's viewpoint. Where, however, the conduct of the event is not up to the standard either because the promoter has failed to take all the necessary precautions for the safety of the drivers, or where the entrants have been negligent in tuning the cars for the strife, racing frequently does not pay and has resulted in accidents, but generally where every conservative precaution is exercised the accident chapter has been reduced to a minimum.

A YEAR ago France, by voting to discontinue the grand prix race, tried to tell the world that racing on special road courses does not pay and that the expenses of promoting such by the promoters and of supporting it by the manufacturers are greater than the results obtained. To realize why France should pronounce such a verdict as this on so popular a sport was probably due to the fact that Italy and Germany, rival manufacturing countries, had come to the fore and carried the highest racing laurels from the very lap of France. Realizing that she was defeated by better cars from other countries, France doubtlessly decided that it was better to say that racing did not pay than to suffer additional humiliations at the hands of the foreigner.

SINCE this adverse verdict France has had 1 year in which to more permanently satisfy herself on the real paying status of road races, and now the sporting commission of the Automobile Club of France announces that there may be a resumption of road racing and there may be a grand prix race in 1910. As to whether there will or will not be a race rests solely with the manufacturers. If the makers want it, there will be a race, and it looks very much as if they do. Marquis de Dion, up to the present averse to racing, has announced that his company is going to enter the racing field, his reason being that without supreme tests such as racing develops, the progress of the industry would not go forward as it should. Some of the other French manufacturers, who a year ago were on the fence, are now out and out for racing. The reason of this about-face may to an extent be deciphered in the export returns of the present year.

WHAT is true with France is true with other countries. American cars have shown to a great advantage in road races this year. These performances have been heralded abroad, and the foreigner has realized that the exports from this country are gradually increasing. The public always likes a winner, and if this or any other country is to continue in the van of motor car manufacture, that country must continue to be in the front in the legitimate well-conducted speed contests of the season.

NEW ENGLAND RESUMES WORK ON ITS ROADS

Plans for Three State Boulevards Taken up Now that Summer Touring Season is Ended

BRETTON WOODS, N. H., Oct. 16—Now that the summer touring season is at an end work on the highways has started again and the plans for the three big state boulevards are being carried out. They will practically center above here just to the north of the White mountains, and then branch off like three distinct rivers and follow their ways south, each few miles taking them farther apart until they reach the state borders. There has been much rivalry between some of the towns as to where the highways should go and naturally everyone could not be pleased.

Governor Quinby and State Engineer Dean have been giving a lot of time to the work. A few days ago the governor told the Motor Age representative that as New Hampshire did not have any highway commission naturally much of the work devolved upon the executive office. He did not say whether he thought the state needed a highway commission. While up at the mountains Governor Quinby made a trip around a wide circle, inspecting the work that had been done by the hotel people.

Later on the Motor Age representative made a trip around and he found the results were surprising. Remembering how bad Tug-of-war hill in Crawford notch was when the first Glidden tour went through there, and when horses were a necessity for many cars, and later how it served for a hill-climb, the writer found it a much easier grade now. He watched several cars go up the hill, among them small ones, and they had little bother. Engineer Dean said that the 23 per cent grade had been reduced now to 12 per cent, or about one half. The road had been widened too.

In fact a number of the roads have been widened. John Anderson hopes to have completed before next summer the widening of many more miles of road. Where the average width was about 10 feet, and in many places much less, the highways are now 16 feet wide, giving plenty room to pass. Bad curves have been eliminated too. Another surprising thing was the way in which the surface of the roads have stood up. Over stretches used by practically all the cars that went to this section the surface was firm and smooth.

That New Hampshire officials fully realize now that the motorists are a welcome class, but to get their patronage they must be treated fairly and provided with good roads, is shown by the activity in the highway department. State Engineer Dean is now touring the northern part of the state going over the work that has been done already, and inspecting what is going on to connect various roads into trunk lines. In talking over this work to place New Hampshire among those states with good highways he said:

"We plan to have the men looking after the roads take care of them right up until snow flies. This fall we shall do a lot of work and then start in as soon as the frost is out of the ground and work until it is time for the summer traffic to begin. I do not believe in cutting up roads in summer, making tourists take roundabout drives. Once the summer is over we shall start again where we left off. The state now has 135 miles of highway under its control and when the boulevards are finished there will be about 500 miles. Of the $1,000,000 appropriated by the last legislature one-half of it was really available within a year, so that gave us a good start. Our entire system of boulevards should be finished in from 4 to 5 years."

Mr. Dean does not believe in lots of waterbreakers on highways and he told the writer that there were very few on the state roads.

Another of the surprising things connected with motoring in New Hampshire has been the practical absence of accidents this summer. With thousands of cars in use here, and many big cars from all parts of the country, hilly roads, and ones with curves obstructing the view, and much carriage driving, there have been very few accidents reported. The explanation for this is found in the many signs of caution at turns and crossroads asking motorists to be careful. This is more of the work of the hotel men, who have paid the bill and thereby added to the safety of tourists. There must certainly be more than a hundred such signs about here alone. Set in frames of tree-limbs or hanging from trees they do not disfigure the landscape, as they harmonize with everything, the letters being white on a red background.

Coming Motor Events

OCTOBER

16-21—Show at state fair, Dallas, Tex.
21-22—Bay State A. A. endurance run, Boston.
23—Road races of Automobile Club of California, San Francisco.
27-29—Track meet at Vicksburg, Miss.
28-30—3-day track meet at Dallas, Tex.
30—Vanderbilt cup race.
30-31—Track meet at Los Angeles, Cal.

NOVEMBER

1—Second meet on Indianapolis Motor Speedway.
3-13—Outdoor show at Salt Lake City, Utah.
6-13—National show at Atlanta, Ga.
9—Opening meet at Atlanta speedway.
22—Start of flag-to-flag reliability, Denver to City of Mexico.

DECEMBER

28-29—Philadelphia mid-winter reliability run.
31—Opening of Grand Central palace show, New York.

JANUARY

7—Closing of Grand Central palace show, New York.
8-15—Madison Square garden show, New York.
17-24—Philadelphia show.

FEBRUARY

5-12—N. A. A. M. show, Chicago Coliseum.
14-18—Annual show at Buffalo.
28 to March 5—Show at Kansas City.

MARCH

5-12—Boston show.
21-28—Denver Motor Club show.

EXPORTS AND IMPORTS

Washington, D. C., Oct. 16—Three hundred and sixty motor cars, valued at $557,934, and parts to the value of $100,622, were shipped abroad during August, as against 156 cars, valued at $346,796, and parts valued at $44,074, exported during the same month of last year. During the 8 months ended August last, the number of cars exported was 2,140, valued at $5,107,953, as against 1,684 cars, valued at $3,569,962, exported during the same period of 1908. During these periods the exports of parts increased from $434,849 in 1908 to $526,492 in 1909. Cars and parts were shipped to the following countries during August last: United Kingdom, $103,880; France, $78,693; Germany, $11,923; other European countries, $23,205; British North America, $306,523; Mexico, $21,564; West Indies and Bermuda, $28,198; South America, $30,256; British East Indies, $966; British Australasia, $30,969; other Asia and Oceania, $14,416; Africa, $4,127; other countries, $3,836.

The import tables show that 194 cars, valued at $333,960, were imported into this country during August last, whereas in August a year ago the number was 179, and the value $280,970. During the 8 months' period the number of cars imported increased from 737, valued at $1,451,594, in 1908, to 1,058 cars, valued at $1,926,603, in 1909. The imports of parts increased from $49,676 in August, 1908, to $114,973 in August last, and from $348,431 to $575,971 during the 8 months' period. During August last cars were received from the following countries: United Kingdom, 8, valued at $16,224; France, 109, valued at $188,696; Germany, 9, valued at $20,589; Italy, 52, valued at $83,511; other countries, 16, valued at $24,940.

HEMERY BEATS KILOMETER RECORD

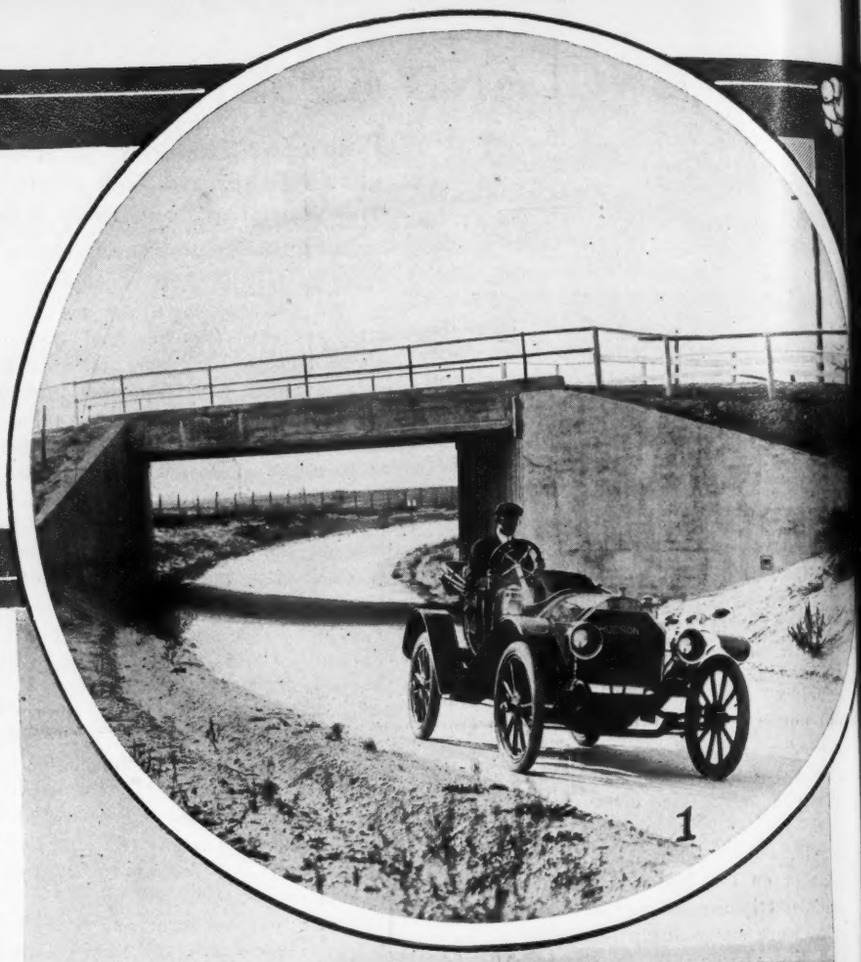
New York, Oct. 18—A cablegram has just been received by the Benz Auto Import Co. of America announcing that Hemery, driving a Benz car at Brussels, went 1 kilometer from a standing start in :31⅕, beating the Mercedes, which finished in second and third places, and the Opel, which finished fourth. The former record for a kilometer, standing start, was held by the Mercedes; time, :32⅖.

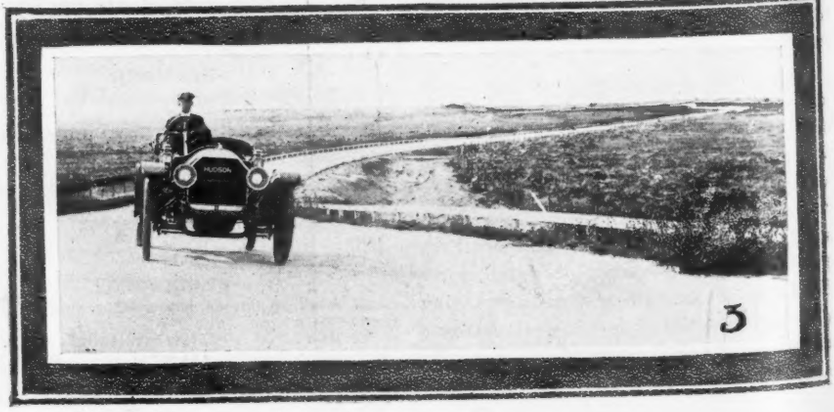
Vanderbilt Race Arrangements Complete

NEW YORK, Oct. 18—It now begins to look like real Vanderbilt cup times over on Long Island. This morning the course was thrown open for practice, while at the office of the Motor Cups Holding Co., which is promoting the meet set for October 30, the entries are coming in so fast that it now looks as if there will be cars aplenty for the classic and its auxiliaries. True, it will not be the old Vanderbilt with its big speed monsters and crack foreign drivers, but as an exposition of the speed qualities of the stock car it is bound to be a success. As has been told before, when the entry blanks first were issued, the fifth competition for the William K. Vanderbilt, Jr., cup is open to stock chassis under classes 1 and 2—451 to 600 cubic inches piston displacement and of a minimum weight of 2,400 pounds, and 301 to 450 cubic inches and a minimum weight of 2,100 pounds. The cars will race twenty-two times around the 12.64-mile circuit, or a total of 278.08 miles. At the same time classes 3 and 4 also will compete, but at shorter distances and on the sweepstake idea. Class 3 is for the Wheatly Hills trophy at 189.60 miles or fifteen laps, and is open to cars of the 231-300 class, the minimum weight of which is 1,800 pounds. Class 4 is for the Massapequa trophy, the 161-230 class cars of a minimum weight of 1,500 pounds being eligible. The distance in this race is 126.40 miles or ten laps.

Entries do not close until next Monday, but already in hand are four Chalmers-Detroits and two each of the Fiat, Buick, National, Simplex and Marmon, and one each of the Isotta, Alco, Apperson, Marion and Moon. Promised are two Stoddards, two Knoxes, two Rainiers, two Renaults, three Maxwells and the Benz, Columbia, Allen-Kingston, Mercedes, Sharp-Arrow, Cameron and Matheson. Of course these will be classified according to their piston displacement.

The preliminary tryouts began this morning, and from now until the day of the race, with the exception of Sunday, the course will be open for practice between the hours of 5 a. m. to 8 a. m. Under a special agreement with the supervisors of Nassau no cars or drivers except those actually



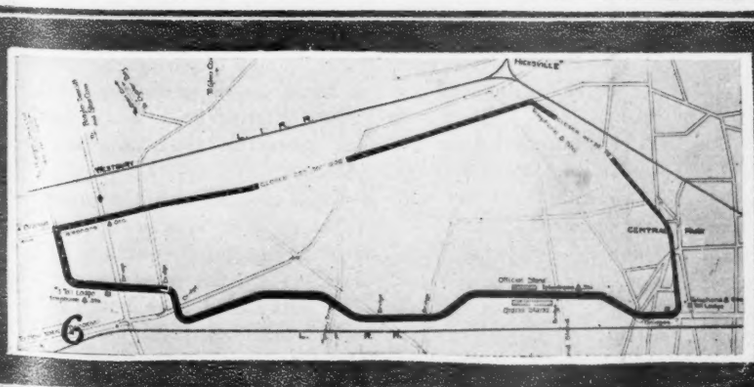


1—Motor Parkway Under Bridge
2—Long Straightaway of Concrete
3—Climbing One of the Overhead Bridges

Vanderbilt
278.08 MILES — 22 LAPS

Wheatley Sweepstakes
189.6 MILES — 15 LAPS

Massapequa
126.4 MILES — 10 LAPS



4—Showing Sinuous Winding of Parkway
5—Old Country Road, Part of Course
6—Map of Vanderbilt Cup Course

entered in the race can participate in this preliminary practice, and in order to prevent any infraction of the supervisors' rules Manager Pardington has prepared a specially-numbered plate which will be hung on the radiator of each entrant's car, and none of these numbers will be issued except to bona fide entrants who have paid their entrance fees.

In order that the spectators at these preliminary tryouts can identify the cars and drivers Manager Pardington has arranged that the cars in classes 1 and 2, entered for the Vanderbilt cup race, will carry numbers 1 to 29; in class 3, for the Wheatly Hill sweetstakes, the cars will be numbered from 30 to 39, while in class 4, for the Massapequa sweepstakes, the cars will be numbered from 40 to 49. This same system of numbering will be employed in the actual race, but of course the cars will probably draw different numbers from those used in practice.

The supervisors of Nassau county say that they are tired of having incompetent, half-baked mechanics and amateurs running their cars on the highways. They claim that these incompetents are largely responsible for the preliminary accidents and mishaps of the past, and for this reason they wish to see all of the drivers who are to pilot at least 10 days prior to the actual contest, so that the incompetents can be weeded out. With this idea in view, the supervisors say that no identification cards will be issued to contestants after today. The belated ones will be obliged to confine their practice to the Long Island motor parkway.

As now ararnged, the policing arrangements are a great improvement over previous years. Sheriff Joseph H. Foster, of Nassau county, has organized a big force of men, and at regular intervals the sheriff and Manager Pardington have placed regular police and flag stations at which men with flags and acting as police officers will be on duty. These stations are to be marked by a yellow placard and numbered consecutively. Acting in conjunction with the sheriff, the Pinkerton agency will have about 400 picked uniformed men on duty. This force is to be drawn from all parts of the country.

MANY NATIONS REGULATING MOTOR TRAFFIC

PARIS, Oct. 6—Eighteen nations, represented by sixty-three delegates, are united in Paris for the purpose of making motor car regulations throughout Europe as uniform as possible, and thus abolishing the difficulties in the way of international travel. The delegates are not representatives of motor clubs, but the accredited representatives of their respective governments, having in nearly all cases full power to act for them. The congress is one that means business.

Europe has the misfortune to be divided into a score of countries, each one of which has its own way of controlling motor traffic and its own conditions of admittance into its territory. As the motor car has made touring among these different countries almost as common as road intercourse among the different states of the federal union, the authorities have awakened to the disadvantage of individual laws, hampering travel and hindering free intercourse. Germany asked France to call together a conference to consider this question. France willingly acceded, and every nation in Europe accepted the invitation.

America also asked to be allowed to come in, with the result that William S. Hogan was officially appointed by the secretary of state. But America needs internal reform before it can usefully participate in a congress for the unformity of motor regulations, and it was this point that Mr. Hogan was instructed to make clear. Until there is a federal motor law it is impossible for the secretary of state to give anybody power to sign a motor traffic convention on behalf of the United States. The opinion of the American delegate is that this movement in Europe will help forward a federal law more than anything else. If Europe, with its score of nations speaking different languages, having different tariff rates and different customs, can come to an understanding on motor circulation, why should not the United States of America?

There are nine distinct items on the program, as follows:

1—Conditions to be fulfilled by all motor cars before being put into circulation.
2—Conditions to be fulfilled by drivers of motor cars.
3—International recognition of driving certificates and national registration numbers.
4—The types of registration numbers, and the way in which they shall be carried.
5—Types of horns and other signalling apparatus.
6—Rules of the road covering overtaking and passing other vehicles.
7—Road signs and danger signals.
8—The recognition of road regulations in force in each country.
9—The creation of frontier stations and customs offices authorized to carry out the formalities provided for in the international regulations.

Under No. 1 will be set forth the various conditions that a motor car must fulfill before being put into use. Thus, in France, for instance, before a car can go on the road it must be examined by a government engineer and meet certain requirements regarding brakes, freedom from explosion, fire, noise and disagreeable smell. There are several countries, America and England among them, which have no such examination. But custom has gone even further than the government regulations, and there is not a car built by a reputable nrm which could not come up to the standard of safety proposed by the congress.

No. 2, dealing with drivers, is a more knotty problem, for the congress proposes that a severe examination, on the lines of that already existing in France, shall be instituted. No person under 18 could hold a driving license. In every case an examination of ability must be held, and each nation would have the power to withdraw the licenses where the authorities saw the necessity for such a course. To introduce such a scheme every nation would have to be prepared to undertake a certain amount of internal reform.

The first two points agreed upon, the third follows naturally, for if a common understanding has been arrived at on the examination of cars and the issuing of driving licenses, there is no reason whatever why a New York registration number should not be accepted in Paris, and a New Jersey driving license received without question in Berlin. It is understood, of course, that New York will only issue registration numbers under the international regulations, and that New Jersey will examine its drivers and license them on the same international basis. But this should not be impossible.

The size of the registration figures and the way in which they shall be carried is not a matter likely to cause any difficulty. No. 5, dealing with types of horns, also is readily settled. No. 6, dealing with rules of the road, is a difficult point. All the states in the union follow the common rule of keeping to the right. In Europe it is not so, the majority keeping to the right, but England having a rule that all traffic shall keep to the left. Curiously, in certain countries, notably Italy, the two rules are in force, in some towns it being necessary to drive to the left, and in others to keep to the right. The congress appears to favor an international driving law under which all vehicles shall keep to the left, as is done in England. With the driver placed on the right-hand side of the car it is claimed that this is the safest rule. It is doubtful, however, if it can be passed, for the change is so drastic that every nation will hesitate to make it. It is certain, however, that those nations which have the two rules in force will have to select either one or the other.

Road signs and danger signals can readily be agreed upon. Indeed a basis for action has been made in the signs without lettering now used in France and various parts of Europe and recently approved at the international congress. Some of these signs were used in the 1907 Vanderbilt race.

The recognition of road regulations in force in each country, is also a matter that should not cause much difficulty. If, as is probable, it is found impossible to establish international driving rules, it is not difficult for each nation signing the agreement to make the necessary detail internal improvements and simplifications and agree to recognize the laws of the other nations. It is in fact merely a continuation of the present conditions.

No. 9, on customs at frontier stations, particularly interests Europe and Americans who tour Europe. The present improved system consists of the issuing of triptyques by the various touring associations. Thus, if you are an American and wish to visit France you can, before leaving home, arrange with the Touring Club of France, deposit your duty, receive in return a three-fold piece of paper and enter France as easily as crossing the East river. The same can be done for several other European countries. The result is that there is no money transaction at the frontier. You make your deposit through your banker at home and are refunded by him on your return.

The system is a concession on the part of the various custom authorities of Europe. It is a concession, indeed, that is not always sufficiently appreciated by the motorist, who does not see the years of labor necessary to convert the authorities and the large sums guaranteed by the Touring Club of France and other associations.

The defect of the system is that for each country issued a deposit must be made. Thus the American who intends to do Europe thoroughly has to obtain about half a dozen triptyques and make a heavy deposit with his banker. It is proposed that there should be one international triptyque, and that the amount deposited on it should be equal to the highest tariff of the various contracting countries. Thus, if an American car, for instance, visits Europe, enters and leaves several countries, but enters and does not leave Italy, the officers of that nation would claim that the deposit be handed over to them in payment of duty. This in fact is what is done now, with the difference that instead of one single deposit there are half a dozen different ones and half a dozen different triptyques to be carried round for presentation at the various frontier stations.

With the international passport the motorist would be able to enter and leave any country in Europe—with a few rare exceptions—on the presentation of a paper. The authorities have nothing to lose by such a scheme and the motorist has everything to gain. In all probability this scheme will be adopted by the nations

now issuing triptyques. The nations that have not yet adopted the triptyque, among them being Russia, Turkey, Greece and the smaller eastern states, doubtless will come in later and co-operate with the others.

MATINEE AT POINT BREEZE

Philadelphia, Pa., Oct. 16—Upward of 6,000 people who flocked to Point Breeze track this afternoon to witness the first local flight of a heavier-than-air machine by Aviator Charles Foster Millard, were considerably disappointed when, after waiting till nearly sundown the event was called off owing to the refusal of the 30-mile gale to abate. As a filler-in it had been arranged to have a series of motor car races on the track, but the paucity of entries and the poor condition of the oval made these events rather tame. The promoters had hung up $500 for a 5-mile two in three heat match race between Robertson in his Simplex and de Palma in a Fiat. The latter was hurt last Saturday and Strang was substituted. The latter for some reason backed out and Zengel in a Chadwick was announced as Robertson's opponent, but when he failed to show up Willie Haupt and his Thomas 70 was substituted as a post entry. Willie sprung a surprise on all hands by annexing the money in straight heats in 5:55 and 5:44. He sneaked past Robertson in the fourth mile of the first heat and gained such a lead that the Fairmount park winner couldn't catch him. In the second heat something went wrong with the Simplex and Willie made a runaway of it. To while away the time the promoters put on a 5-mile match race, best two in three, for $50 cash or plate between the Thomases driven by Haupt and Bergdoll. The brewer showed up his team-mate in both heats, winning easily—6:00 and 5:55. The free-for-all at 5 miles was the best race of the day, Robertson getting away with the flash of Starter Davis' gun and opening up a 100-yard lead in the first mile on Bergdoll and Haupt, the only other starters. He added a little to his advantage on each lap and at the finish line had nearly ¼ mile on Bergdoll and twice that margin on Haupt. Robertson's time was the best of the day—5:37, which, considering the poor track, was rather good. A series of mile time trials between the only fast cars at the track wound up the motor car end of the affair. Summaries:

Match race, 5 miles, for $500, best two in three, first heat—Haupt, 20-horsepower Thomas, won; Robertson, 90-horsepower Simplex, second; time, 5:55. Second heat—Haupt won; Robertson, second; time, 5:44.

Match race, 5 miles, for $50 cash or plate, best two in three, first heat—Bergdoll, 70-horsepower Thomas, won; Haupt, 70-horsepower Thomas, second; time, 6:00. Second heat—Bergdoll won; Haupt, second; time, 5:55.

Free-for-all, 5 miles, for $50 cash or plate—Robertson, 90-horsepower Simplex, won; Bergdoll, 70-horsepower Thomas, second; Haupt, 70-horsepower Thomas, third; time, 5:37.

One-mile time trials—Robertson, Simplex, won; time, 1:05. Haupt, Thomas, second; time, 1:08. Bergdoll, Thomas, third; time, 1:10.

Winners in Quaker Race Are Given Their Prizes

Philadelphia, Pa., Oct. 18—There was a veritable love feast of gratified Quakers at Keith's theater last Thursday night, when the prizes won in last Saturday's 200-mile Fairmount park race were distributed. The big playhouse was jammed, and after witnessing the re-running of the main features of the race on the moving picture machine Starter G. Hilton Gantert, against whom the drivers had circulated a petition before the race on the ground of inexperience and trade affiliations—but who made good nevertheless—was introduced by Manager Jordan, of the theater. Gantert in turn introduced Referee R. E. Ross, and the latter presented Harry C. Harbach, secretary of the Quaker City Motor Club, in whose fertile brain was hatched the idea of having an annual race in Fairmount park, and to whose untiring labors no little of the success which has attended the event during the past 2 years can be attributed.

Mr. Harbach presented the prizes to the winners. Robertson captured $2,500 in gold and the $1,000 MacDonald & Campbell cup; Dingley annexed $1,250 in cash and the Autolight company's gold watch, the latter for the most consistent work during the race; Harding, $750 in gold and Joe Parkin $500 in the same yellow metal. The big, good-natured crowd insisted on speeches from each of the winners; but the latter evidently were out of their element, and the few words they uttered in response were hardly audible. Len Zengel, who was awarded $100 in gold for the lastest lap, 7:41, did manage to express his regret that he hadn't made all his laps in that time. The Michelinites extracted much satisfaction from the fact that the "As usuals" ran 1-2-3-5 in the race, and that not a single puncture was recorded for any of the quartet. What renewals were made were for precaution's sake, and not from actual necessity. Joe Parkin's Chadwick, which finished No. 4, was equipped with Firestones.

An idea of the thoroughness of the Red Cross preparations for the race may be had from the statement that the hospital corps, under the direction of Dr. H. R. Owens, chief police surgeon, consisted of twenty hospital tents, seventeen ambulances, ten patrol wagons, thirty doctors and sixty nurses. Those who had charge of the work of protecting the public at the numerous bad turns on the course knew their business. In some instances the ropes were stretched 75 or 100 feet back from the road at these places, thus giving the driver leeway in the event of a bad skid. This precaution saved trouble in a number of instances. There was a guard stationed every 15 yards around the entire 8 miles of the course, on both sides of the roadway.

A peculiarity of the race was the numerous instances of engine-heating. Seasoned drivers say they never saw so many cars losing time from this cause. The mile of uphill work from the River drive to Belmont avenue probably was responsible in part for this overheating.

The Firestone company is exhibiting at its local branch the broken wheel of the Selden car, which came to grief on the first lap at Sweet Brier S-hairpin. Although the wheel is almost entirely demolished, the tire still remains on the demountable rim as tightly as when placed there.

Harding's showing as Herb Lyttle's understudy is likely to secure him a permanent berth with the Apperson people. He has been given the Vanderbilt job by Apperson.

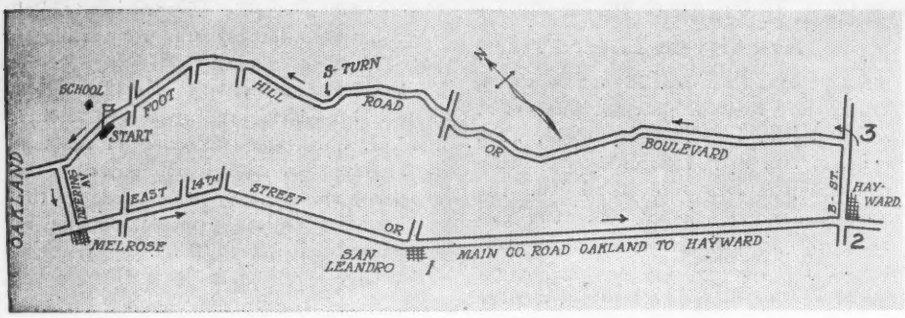
GARDNER SOCIABILITY WINNER

Indianapolis, Ind., Oct. 19—Charles G. Gardner in a Marmon won the second sociability run given this season by local tradesmen and private owners last Saturday. The run was to French Lick and return and Mr. Gardner finished within 1 minute 14 seconds of the secret schedule of 6:47:26, his time for the 132 miles being 6:48:40. It was fortunate that the contest was only held in one direction, for it rained Sunday morning and throughout the day the roads were almost impassible. The drivers were permitted to return when they pleased and over any route they wished. The run to French Lick Saturday was under almost ideal conditions. The roads were in excellent shape and the atmosphere was bracing. The numerous hills were negotiated without difficulty and there were no accidents. There were sixteen cars as follows:

No. 1—Packard, pilot, Paul Smith. No. 2—Stoddard-Dayton, confetti, Frank L. Moore. No. 3—Locomobile, L. M. Wainwright. No. 4—National, Carl G. Fisher. No. 5—Marmon, Charles G. Gardner. No. 6—National, A. C. Newby. No. 7—Stoddard-Dayton, J. A. Allison. No. 8—Packard, Will A. Atkins. No. 9—Stoddard-Dayton, Dr. George Hunt. No. 10—Premier, Edward Krauss. No. 11—Studebaker, Frank Staley. No. 15—Hudson, G. H. Greenburg. No. 16—Empire, R. H. Hassler. No. 17—Overland, Harry Barnes. No. 19—Willys six, M. Campbell. No. 20—Maxwell, John Hayden and John Corbet.

There were two classes of entries, class A, for cars selling at $2,001 and over, comprising entries Nos. 1 to 11, inclusive; class B, for cars selling at $2,000 and under, included the remaining entries. Greenburg, driving a Hudson, finished closest to the secret schedule of his class.

After arriving at French Lick, a hill-climb was held on Taggart's Terror hill, which is 1,485 feet long, a 17 per cent grade and with two bad turns. There were four classes of entries under the A. A. A. rules, as follows: Class 1, cars having a piston displacement of from 301 to 450 cubic inches; class 2, 231 to 300 cubic inches; class 3, 161 to 230 cubic inches, and class 4, under 160 cubic inches. Carl G. Fisher, driving a National, won the class 1 event, his time being :31⅘; Frank L. Moore in a Stoddard-Dayton won class 2 in :40⅘, and H. L. Martz, driving a Maxwell, class 4, in :48⅕. There were no entries in class 3. In the free-for-all climb that followed, Tom Kincaid, driving a National, was first, in :30.



MAP OF PORTOLA RACE COURSE IN ALAMEDA COUNTY, CAL.

AN FRANCISCO, CAL., Oct. 19—Special telegram—For the Portola week road races which will be run next Saturday over a 21.5-mile course laid out over the country roads and foothill boulevards across the bay in Alameda county there are fifteen entries in hand to date, distributed among the three classes carded. Class 1 cars, which are of the 231-450 piston displacement division and of a minimum weight of 2,100 pounds, will go 150 miles. Class 2, 451 to 600 and 2,400 pounds minimum weight, will travel 215 miles, and class 3, over 600 cubic inches, will run 258 miles. The entry list today is as follows:

Car	Driver
Knox	Frank Fee
Pope-Hartford	Jack Fleming
Pope-Hartford	George Potter
Chalmers-Detroit 40	Howard Warner
Stearns 30-60	Charles Soules
Stearns 30-60	D. A. Bonney
Maxwell 30	Clarence King
Apperson	Harris Hanshue
Lozier four	Harry Michener
Stevens-Duryea six	Cliff Onthank
Sunset	Harold Hall
Buick 40	Frank Murray
Autocar	Walter C. Morris
Comet six	Al Hall
Buick 40	Carl Christensen

Little Cars Get In

San Francisco, Cal., Oct. 15—The appeal of the small cars to be allowed to participate in the road races to be held across the bay in Alameda county on October 23, has been granted and Chairman L. P. Lowe, of the race committee of the Automobile Club of California, has cut the minimum piston displacement from 300 cubic inches to 231 cubic inches. This change in the classification will permit several of the smaller cars to participate in the races, and they already have announced their intentions of doing so. Chairman Lowe also has rearranged the program to some extent. Event No. 1 is now for a stock chassis having a piston displacement of from 231 to 450 cubic inches and a minimum weight of 2,100 pounds. This is made up of class B and combination of sub-classes 2 and 3 of A. A. A. The cars in this race will make seven laps of the course, which means that they will cover about 150 miles.

Houston Club Revived

Houston, Tex., Oct. 18—After a moribund existence, the Houston Automobile Club, of this city, is again alive. E. R. Spotts has been elected president and Guy McLaughlin secretary. One of the principal objects will be to have the city ordinances revised. There is no objection to the speed laws and the club will pledge itself to assist in the enforcement thereof. Harris county has recently voted $500,000 in bonds for the improvement of existing roads and the building of new ones. The club proposes to make the betterment of the roads a matter personal to each member of the club, the great majority of whom are taxpayers. There are a number of roads leading out of Houston which have been very costly to the county and which are in bad repair. The county has spent about $1,100,000 on roads in the past few years and has about $11,000 worth of roads which are really good. It is proposed to keep such an oversight of future expenditures as will result in some good being accomplished with the money.

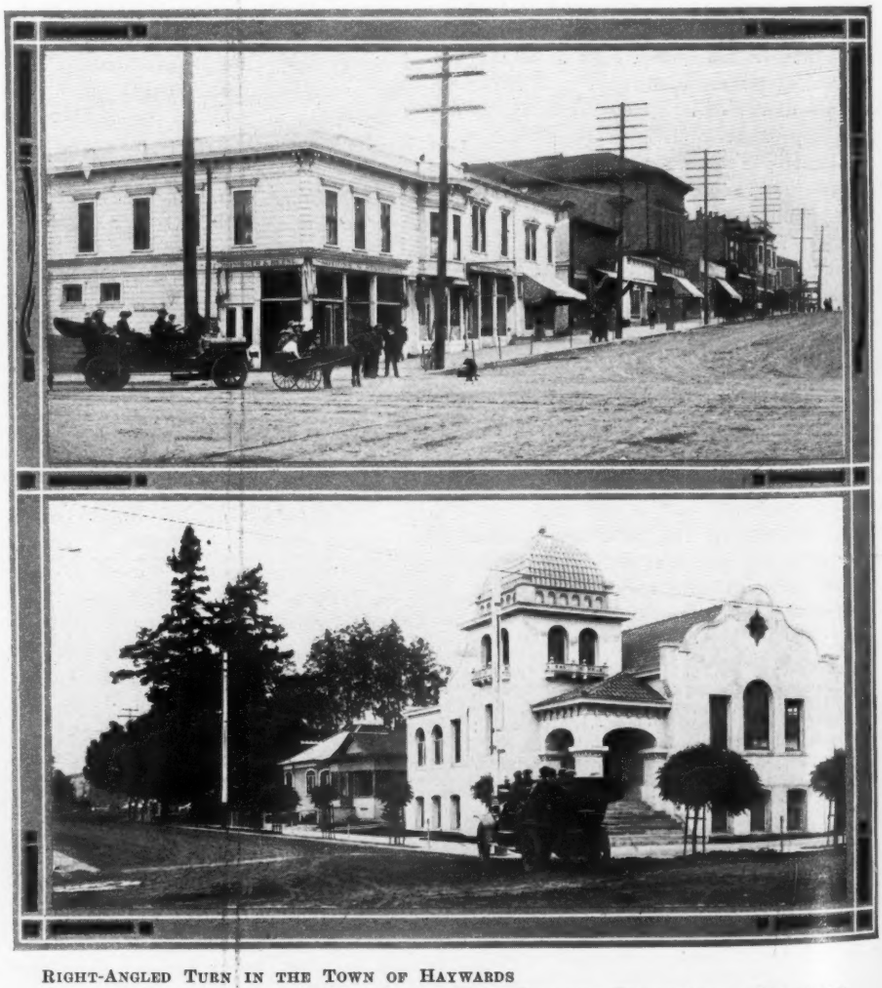
Fifteen Cars In

The first prize will be $700 in cash or gold plate in accordance to the wishes of the entrant of the car. The second prize will be $200 and the third prize $100.

Event No. 2 is now for stock chassis having a piston displacement of from 451 to 600 cubic inches and a minimum weight of 2,400 pounds—class B, sub-class 1, of A. A. A. classification. Ten laps of the course are to be made by these cars, covering about 215 miles. First prize will be $1,000; second prize, $400; third prize, $100.

For event No. 3 are eligible racing cars and cars having a piston displacement in excess of 600 cubic inches, and it also is open to cars which have regularly qualified for either event No. 1 or No. 2. Twelve laps of the course, or about 258 miles, are to be covered in this event, which will be regarded as the greatest of all three. The first prize is to be $2,000 cash or gold plate, the second prize $600 and the third prize $400. It is expected that these official prizes in the three contests will be augmented by additional valuable trophies, but the official prizes only are guaranteed by the promoter.

Men who have had the experience in such matters in various parts of the coun-



RIGHT-ANGLED TURN IN THE TOWN OF HAYWARDS
RIGHT-ANGLED TURN INTO THE BOULEVARD AT HAYWARDS

the Portola Races

try declare that there is hardly a finer racing course to be found anywhere in the United States. It is an irregular oblong almost 10 miles to the side and very short ends. Outside of the four right-angle turns which are necessary to get from the boulevard to the country road and then, at the other end of the run, to get back to the boulevard, there are hardly more than three or four places where a driver will be compelled to shut down his throttle very materially. The race will start on the boulevard at the Frick school, which is about a mile and a half from the northern end of the beautiful highway. The boulevard is as smooth as a billiard table and broad enough to permit of two cars passing without the least difficulty anywhere, and if three or four cars get bunched there should be no difficulty in the matter of getting by each other. From the boulevard the cars will be turned into a street some ¼ of a mile long that will take them down to the country road. It is here that the greatest speed of the day will be made. It is practically a straight stretch for the entire distance of 10 miles from where the cars turn into the county road here to the town of Haywards, where they turn back into the boulevard. Here and there occur slight turns, but usually they are so broad and so gradual that a clever driver can take them at a wide angle and make a shoot into the new straightaway with very little loss of momentum.

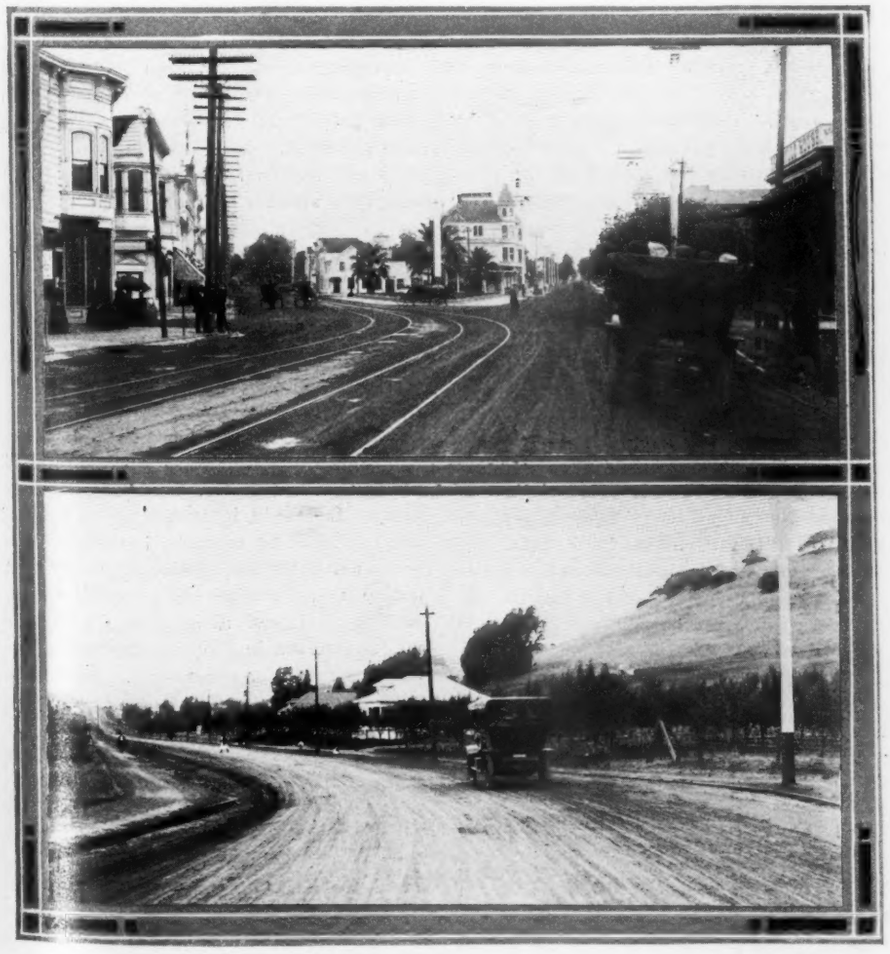
One of the Sweeping Turns on the Course

Turns In San Leandro

One of these turns occurs in the middle of the town of San Leandro, and the situation is further complicated by the presence of street car tracks. The turn is fairly gradual, however, and the racing men already on the ground declare that the car tracks are set so closely into the ground that they should cause no inconvenience. The road generally on this long 10-mile stretch is good. It is mostly of the gravel kind and there are some places that will have to be smoothed down a bit or the drivers will be badly jounced and speed cut down accordingly. To make up for this, however, there are a few stretches of the smoothest macadam, where the only limit to speed will be what the cars are capable of.

In the town of Haywards the cars take a right-angle turn back to the boulevard on their left. This roadway is generally in fine shape, having been carefully constructed of gravel and well taken care of. It will be possible to make great speed up it for a greater part of its 10½ miles, but there are several winding turns, including one S, that will compel the drivers to shut down materially. The worst feature of the road was a narrow concrete bridge on an S turn. This structure was torn down and completely remodeled by the county at a cost of $10,000. Outside of the S turn just mentioned, there is not another serious curve on the boulevard portion of the course, and nothing that will be likely to seriously strain a car.

Approaching the finishing line at the Frick school, the cars have a long straightaway for ½ mile, and for a long distance before it nothing that should seriously impede their speed. If there are any close finishes, therefore, they can fight it out to the last, hood to hood.



Cars Shoot Into Left-Hand Road at San Leandro
Long, Straight Dash Up Hill with Easy Turn at Top

Drought in Pennsylvania

Philadelphia, Pa., Oct. 18—That the drought is rather severe in southeastern Pennsylvania was made manifest by an incident which occurred last week while a party of Philadelphians were motoring in upper Montgomery country, not many miles from Norristown. The engine heating up considerably, a stop was made at a farmhouse, where the request was made for the loan of a bucket in which to procure water to fill the radiator. "Water!" shouted the farmer to whom the appeal was made, "well, I guess not. Water is too blamed scarce around these here parts to waste on them whiz wagons." The party at first thought the agriculturist was having a little joke at their expense, but soon learned that his wells were dry and that he was compelled to haul water over a mile from the nearest creek. They bought an old bucket from him and, after waiting for the engine to cool off thoroughly, were compelled to drive to the same watercourse before they could find sufficient of the aqueous to fill the radiator.

CARRIAGE MAKERS WITHIN THE MOTOR FOLD

NEW YORK, Oct. 18—"One sees the things for which one looks" is a maxim so often true that impressions of the sixteenth annual exposition of the carriage and harness trades held at Grand Central palace during the past week are questioned as to whether they truly represent the facts. This show was for the trade only and therefore the number of people present could not be compared with a motor car show, where large gate receipts and entertainment for the public are prominent features. But one fact stands out in full relief and is easily shown by actual count, and this is the tail is now wagging the dog. The motor car has not only invaded the carriage show but has become a most active end of it. A few years ago only one or two makers deemed it worth while to exhibit their goods to carriage dealers, but this year ten concerns showed motor cars only, and a number of others exhibited both motor and horse-drawn vehicles, with the result that half the vehicle exhibitors showed a self-propelling product. Nor did the harness end have all the accessory attention. Makers of lamps, magnetos, tops, wind shields, robes and speedometers were on hand upholding the dignity and importance of the newer industry in a benefiting manner. One of the exhibitors was a motor school, there to show motor parts and give instructive lectures on the motor car, and this free and by arrangement with the management; an example the regular motor car shows could well follow with profit.

The management said in the official guide regarding this school: "The one reason why every carriage dealer in the country is not handling motor cars, is that all of them do not understand the mechanism." This true statement applies with equal force to the public. When people learn how simple the self-running carriage may be, and how economic it may be run and learn enough of its make up to buy with confidence the market will expand to a size that even the best-informed dare not predict. The carriage show would seem to be the place to find the motor buggy type of vehicle, and there were some very representative ones, but the large majority of the self-propelled vehicles were of the conventional type. This indicates that car makers and carriage dealers are both realizing the value of two strings to their bow. They are awakening to the fact that the man who wants a car will not buy a buggy and that handling two widely different lines does not interfere, but instead reaches more buyers and stimulates business. The carriage dealer can take motor cars and retain his carriage trade control for years, but he cannot so successfully lead his customers to a motor buggy if they have decided to buy the conventional motor car. The car dealer cannot well take up the carriage business even if he so desired, because it is already established, but he can add the motor buggy to his line and reach a large intermediate class as can also the carriage dealer who handles motor cars as well.

The motor buggy, being a sort of intermediate, usually attempts to combine the light weight, simple construction and general appearance of the buggy with the easy-riding, high speed and self-propulsion of the car, and its future will depend largely on the success of these attempts. The examples shown embodied in general three different methods. The Breeze and Anderson motor buggies employ a frame of angle steel mounted on springs carried by the axles. About midlength of this frame the engine is placed, with planetary gear on its shaft. A short chain leads to the sprocket shaft, which lies across the frame in front of the rear axle and is connected to the rear sprockets by side chains. In general it is an adoption of older motor car design. The engines are air-cooled two-cylinder opposed of the four-cycle type. The bodies rest directly on the frame as in usual car construction, and wheel steerings are used. In the Breeze the makers have wisely secured the use of long hubs and lessened strain on the steering parts by the adoption of overhanging steering knuckles. This brings the pivot on which the wheel turns almost up to the spokes and makes steering much more steady and easy. In the Duryea this desired result is obtained even more fully by inclining the pivot so the center line, if extended, strikes the ground at the point of contact with the wheel, making the steering like the steering of a bicycle and taking the strain off the steering parts quite fully and permitting the use of simple lever steering.

In the Schacht motor buggy the friction drive is used. This is of the disk type, best known in connection with the Lambert cars, which were also shown, but different in that the driving disk surface is movable and can be set closer to the driven one or retracted therefrom to disconnect instead of being fixed in position and having the driven shaft movable. The engine is a water-cooled one having two cylinders opposed and set crosswise the vehicle at the rear, which keeps the weight on the driving wheels where it belongs. Double side chains run from the shaft ends to the rear wheels and are partly guarded to protect from dirt. This motor has been increased to 20 horsepower, thus providing 25 per cent more power than in the past. The chains are kept taut by improved radius rods which permit free spring action without varying the length of the chain. The springs are a special feature and run the whole length of the rig, making the largest spring in motor car use so far as known they give smooth and easy riding found in but few of the solid tire vehicles. Pneumatic tires and running boards are used in some models, thus making the vehicle more nearly like the conventional motor car than in the past, although the wheelbase is but 74 inches. The radiator forms the dash of the rig and does not look out of place while serving nicely as a cooling device.

The Duryea was not shown in the building, but was in evidence on the street. It differs from the others in having the roller drive with a two-cylinder air-cooled engine. The driving wheels have steel rings attached to them of large diameter and in these rings the driving rollers are forced and grip by friction just as the locomotive wheel grips the track and propels the train. The vehicle shown had center control and could be driven from either side of the seat. The pedals and clutch lever are in the center of the rig and reached by the inside hand of the driver. The steering post, also is in the center and well to the back of the cushion and the lever, can be turned to either the right or left so as to be reached by the outer hand of the driver. The weight is somewhat lighter than last year and the construction is a little lighter. These things have been brought about by better designing mostly and by the substitution of better material.

One of the features of the show was a small runabout of conventional shape with pneumatic tires. This has double-opposed water-cooled engine in front and friction disk drive. It was quite low and had small wheels. It attracted much attention and ran well on the good streets. It simply is another example of the fact that in so large a market there is room for many varieties of rigs.

SHOW ON AT WASHINGTON

Washington, D. C., Oct. 19—The annual convention of the Carriage Builders' National Association began today, the feature being the big exhibition of materials, parts and accessories at Convention hall. Motor supply manufacturers are well represented among the exhibitors, demonstrating very clearly the rapid interweaving of the motor car and the carriage industry. It is said that fully 70 per cent of the present active and associate membership of the carriage builders' association are in some way interested in the manufacture of motor cars, parts or accessories. Among the exhibitors are: Timken Roller Bearing Co., Canton, O., roller bearings and axles; B. F. Goodrich Co., Akron, O., tires; E. F. Rogers & Co., Philadelphia, Pa., motor car specialties; George Tiel & Co., Carthage, O., motor car springs; Consolidated Rubber Tire Co., New York, Kelly-Springfield tires; Diamond Rubber Co., Akron, O., tires; McKinnon Dash Co., Buffalo, N. Y., motor car seats; Kokomo Rubber Co., tires; Cortland Carriage Co., motor car tops, hardware; Firestone Tire and Rubber Co., tires; Lig-

gett Spring and Axle Co., springs; Spitzli Mfg. Co., Utica, N. Y., jacks; A. T. A. Nelson Co., Cincinnati, strap leathers; Victor Rubber Co., tires; C. C. Cowles Co., lamps, etc.; Cately & Ettling Co., springs and levers; Eberhard Mfg. Co., iron castings; Republic Rubber Co., tires; Fabrikoid Co., imitation leathers; L. C. Chase & Co., top coverings; Rose Mfg. Co., Neverout lamps; Goodyear Tire and Rubber Co., tires; Hartford Rubber Works Co., tires.

NEW DENVER TRADE BODY

Denver, Col., Oct. 16—The motor car dealers held a meeting last night at the Kaiserhof hotel and formed an organization to be known as the Automobile Tradesmen's Association of Denver. More than thirty dealers joined as charter members and the remaining ten or fifteen in the city have signified their intention of affiliating with the organization. The association will hold monthly meetings. Among the objects sought by the organization will be a uniform published tariff for the storage and care of motor cars, a scale of prices for repairs, and in general to better serve their customers and increase their pleasures in motoring. The matter of holding a show was discussed and considerable opposition was made to the date of the week of March 21, which has been set by the show committee of the Denver Motor Club. The dealers say this is too late in the year, as practically all their cars will be disposed of by that time and a show would be a needless expense. As that is the only time the Auditorium can be secured, owing to the arrangements with the Shuberts for the winter, the show commitee has decided to continue preparations for the show on that date, hoping to overcome the opposition and convince the dealers that an exhibition of their cars in the early spring will prove profitable to them. The officers of the association for the first year are: F. L. MacFarland, president; E. Linn Mathewson, vice-president; Lyman R. Stone, secretary; E. E. Zook, treasurer. Tom Botterill, Joseph H. McDuffee and W. W. Barnett were appointed an executive committee to act with the other officers.

LEAGUE CITED FOR CONTEMPT

Buffalo, N. Y., Oct. 16—An order has been issued by Judge Hazel in the United States district court of Buffalo requiring the Interantional Automobile League of this city, of which A. C. Bidwell is the president, to show cause on November 9 why it should not be adjudged in contempt of court. The charge is that the league violated the provisions of a permanent injunction issued last August from the same bench. Howard P. Denison, H. E. Chase and Byron F. Fellows, Jr., who are associated with the Weed Chain Tire Grip Co. and the Parsons Non-Skid Co., the complainants in the action, laid the information before the court.

Ninety-Three Car Makers Will Show in Palace

NEW YORK, Oct. 18—Final diagrams for the Grand Central palace exhibition show seventy-two makers of leading American cars and fifteen importers of foreign cars with six additional American cars on the waiting list, making a total of ninety-three makers of cars. Members of the Motor and Accessory Manufacturers totaling 110 will draw for space for the palace affair after October 22, and with 104 accessory concerns not affiliated with the M and A. M. and twelve on the waiting list brings the grand total up to 319 exhibitors in the palace show. Following is the list of the motor car exhibitors which have been allotted space in the palace affair:

AMERICAN CARS

American Motor Car Co.	Indianapolis, Ind.
American Motor Truck Co.	Lockport, N. Y.
Allen-Kingston Motor Car Co.	New York
Atlas Motor Car Co.	Springfield, Mass.
Austin Automobile Co.	Grand Rapids, Mich.
B. C. K. Motor Car Co.	York, Pa.
Bartholomew Co.	Peoria, Ill.
Black Mfg. Co.	Chicago
Brush Runabout Co.	Detroit, Mich.
Buckeye Mfg. Co.	Anderson, Ind.
Cartercar Co.	Pontiac, Mich.
Carter Motor Car Corp.	Washington, D. C.
Chadwick Engineering Works	Pottstown, Pa.
Chase Motor Truck Co.	Syracuse, N. Y.
Cameron Car Co.	Beverly, Mass.
Coates-Goshen Co.	Goshen, N. Y.
Columbus Buggy Co.	Columbus, O.
Crawford Automobile Co.	Hagerstown, Md.
Dayton Motor Car Co.	Dayton, O.
Demotcar Sales Co.	Detroit, Mich.
Empire Motor Car Co.	Indianapolis, Ind.
Fal Motor Co.	Chicago
Ford Motor Co.	Detroit, Mich.
Gaeth Automobile Co.	Cleveland, O.
Grabowsky Power Wagon Co.	Detroit, Mich.
Gramm-Logan Co.	Bowling Green, O.
Hart-Kraft Motor Co.	York, Pa.
Holsman Automobile Co.	Chicago
Houpt, Harry S., Mfg. Co.	New York
Hupp Motor Car Co.	Detroit, Mich.
Inter-SState Automobile Co.	Muncie, Ind.
Jackson Automobile Co.	Jackson, Mich.
Jewel Carriage Co.	Carthage, O.
Kissel Motor Car Co.	Hartford, Wis.
Lansden Co.	Newark, N. J.
Lion Motor Car Co.	Adrian, Mich.
McCue Co.	Hartford, Conn.
McIntyre, W. H., Co.	Auburn, Ind.
Mack Bros. Motor Car Co.	Allentown, Pa.
Martin Carriage Works	York, Pa.
Maxwell-Briscoe Motor Co.	Tarrytown, N. Y.
Metz Co.	Waltham, Mass.
Metzger Motor Car Co.	Detroit, Mich.
Middleby Auto. Co.	Reading, Pa.
Midland Motor Co.	Moline, Ill.
Mitchell Motor Car Co.	Racine, Wis.
Moline Automobile Co.	East Moline, Ill.
Moon Motor Car Co.	St. Louis, Mo.
Mora Motor Car Co.	Newark, N. Y.
Nugent Automobile Co.	New York
National Motor Vehicle Co.	Indianapolis, Ind.
Nordyke & Marmon Co.	Indianapolis, Ind.
Oakland Motor Car Co.	Pontiac, Mich.
Otto, A. T.	New York
Otto Sales Co.	Philadelphia, Pa.
Paterson, W. A., Co.	Detroit, Mich.
Penn. Auto. Motor Works	Bryn Mawr, Pa.
Pierce Motor Co.	Racine, Wis.
Premier Motor Mfg. Co.	Indianapolis, Ind.
Rapid Motor Vehicle Co.	Pontiac, Mich.
Randolph Motor Car Co.	Chicago
Regal Motor Car Co.	Detroit, Mich.
Reo Motor Car Co.	Lansing, Mich.
Schacht Mfg. Co.	Cincinnati, O.
Seitz Automobile Co.	Detroit, Mich.
Simplex Motor Car Co.	Mishawaka, Ind.
Sharp, William H., Co.	Trenton, N. J.
Speedwell Motor Car Co.	Dayton, O.
St. Louis Car Co.	St. Louis, Mo.
Streator Motor Car Co.	Streator, Ill.
Sultan Motor Car Co.	New York
York Motor Car Co.	York, Pa.

FOREIGN CARS

American Zust Auto. Co.	Zust
Benz Auto. Import Co.	Benz
Bowman Automobile Co.	Clement-Bayard
Brewster & Co.	Delaunay-Belleville
C. G. V. Import Co.	C. G. V.
DeDion-Bouton Selling Branch	DeDion
DeDietrich Import Co.	DeDietrich
Delahaye Import Co.	Delahaye
Fiat Automobile Co.	Fiat
Hotchkiss Import Co.	Hotchkiss
Hol-Tan Co.	Lancia
Isotta Import Co.	Isotta
Panhard & Levassor	Panhard
Renault Freres Selling Agency	Renault
S. P. O. Automobile Co.	S. P. O.

All of the importers are New York concerns.

Although every available square foot of space has been allotted for the show, each mail brings additional applications for space, which continues to increase the already large overdemand for floor space. It is the first time in the history of the American Motor Car Manufacturers' Association shows that every inch of space has been allotted 3 months prior to the opening. Applications now received are being placed on the waiting list and in case of withdrawal for any reason of concerns who have been allotted space, the late applicants will be cared for according to the date their applications were received. In this connection it is worthy of comment that the Paris salon has been abandoned this year owing to the popularity of aeronautics, while on this side of the water the motor car is enjoying a greater vogué than at any time in the previous history of the industry.

DISCUSS BOSTON SHOW PLANS

Boston, Mass., Oct. 16—The Boston Automobile Dealers' Association held a meeting Thursday at which the applications for space at the next motor show were acted upon. Manager Chester I. Campbell stated that the demand would be much heavier this year because of all the new agencies that have been opened in this city. Already the committee is working out plans to get more space out of the hall. The place formerly occupied by the restaurant has been gobbled up for exhibition purposes and the lunchroom will be smaller and located downstairs. However, this does not matter much as there are so many hotels and restaurants near Mechanic's building the men will not go hungry. The motor cycle people have been anxious to make a greater showing this year and they want larger space than before.

HOOSIERS START ROAD CRY

South Bend, Ind., Oct. 19—The first guns in the campaign for good roads in St. Joseph county were fired Friday night at a meeting of the South Bend Automobile Club. Plans were laid for a meeting of the club in the near future to which are to be invited township trustees and road supervisors, county commissioners, the county attorney, auditor and treasurer. Its purpose is to discuss plans for the cooperation of township and county officers with the club in an effort to arouse the interest of the city and country people in good roads. The consensus of opinion seemed to favor gravel roads, as there are gravel beds in nearly every township in the county, thus making short hauls for the material. It was agreed at this time to confine the work to one section and the highway between this city and Laporte was selected to be improved first.

SIZAIRE ON HILL-ARROW DENOTES START OF GAILLON CLIMB

Bablot Wins the Gaillon Climb

PARIS, Oct. 4—With the same car in which he won the Gaillon kilometer hill-climb last year, Bablot, the Brasier driver, was the winner this year of the eleventh annual classical Gaillon event. The time was 28⅖ seconds as against 26⅕ seconds in 1908. The cause of this year's slower time is due only to the condition of the roads which were thoroughly soaked from an all-night and early-morning rain. So muddy were these roads in the forenoon that the trials which had been scheduled to take place from 10 to 1 were postponed till after dinner. When it is taken into consideration that over half of the .62 miles course has a 9 per cent gradient and the remainder a 5 per cent gradient, it will probably be agreed that not only Bablot's time, but that of several of the smaller and less powerful cars was exceptionally good.

There were a respectable number of starters. As usual there were too many classes or subdivisions. There were seven such classes with but one starter, two with two starters, one with three, one with six and one with eleven. In this last named class were four-cylinder cars having a maximum bore of 3.3 inches and six-cylinder cars with a maximum bore of 2.95 inches. The starters were a Rolland-Pilain, one Le Gui, one de Bazelaire, one Phoenix and one Tribet, this being the only six-cylinder car. The Le Gui with a motor 3.3 by 4.7 was the winner, its time being 1:17⅗, which was 1⅕ seconds faster than the second car, a Rolland-Pilain. The Tribert, a new one made in France, made the slowest climb.

The six starters in class 2, for monocylinders having more than 3.9 inches bore, two-cylinder cars with not over 3.9 inches bore and four-cylinder cars with a maximum bore of 2.7 inches, were a Tribert, a Crespelle, two Sizaire-Naudins and two Brasiers. The Sizaire driven by Sizaire, and the Crespelle driven by Crespelle, the former having a monocylinder engine 5.1 by 6.7 and the latter a monocylinder engine 4.1 by 7.1, tied for first place, the time for both being 1:10⅗. Sizaire for some reason not given out protested the Crespelle car and the latter was disqualified. A Brasier took second from the other Sizaire car. In class 5, for cars having a maximum bore of 3.5 inches the Motobloc, 3.5 by 4.7, made :47, the Nagant 1:03 and the Gobron 1:24⅘.

In the class of grand prix voiturettes in which nine cars were entered and eight of them weighed the day before, only three started, a Lion-Peugeot, a Crespelle and a Coree-La Licorne. Giuppone in his 3.9 by 9.8 Lion easily made the fastest time, going the kilometer in :46⅕, while the 4.1 by 8.3 Corre-La Licorne was second in :57, which was 2⅖ seconds better than the time of the 4.3 by 7.1 Crespelle.

The second fastest time of the day was made by Joerns, who came specially from the Opel factory to try and win this year's Gaillon contest for the big German car maker, Opel. Joerns' time was :30.

The other time winners were Gaste, in his six-cylinder Rossel, :32; Hurtu, in a monocylinder Hurtu, 3.9 by 4.7, 4:42⅖; Delage, in a four-cylinder Delage, 2.9 by 4.7, in 1:13⅕; Baron von Zuylen, in a four-cylinder Belgica, 4.3 by 5.1, in 1:25⅕; Stecke, in a four-cylinder Germain, in 1:14; Bohn, in a six-cylinder Lorraine-Dietrich, 5.1 by 5.9, in :51; Lacourt, in a Lurquin-Coudert tri-car, in 2:01, and Villebois, in a Lurquin-Coudert motor cycle, in 1:27⅗.

Besides the classification according to the time made there was a classification according to the rendement. To get this there is taken into consideration the bore and stroke, the weight of the car and the time it took to cover the kilometer. According to this classification the Motobloc car took first prize, the Sizaire-Naudin second and the Crespelle third among the touring cars, while the Lion-Peugeot won from the Corre-La Licorne, Crespelle and Brasier among the racing cars.

BABLOT IN THE BRASIER

According to this classification, the record made this year on a very bad road by the Motorbloc is far better than that made by the English Vauxhall car which was classed first according to the same formula in last year's climb. The Vauxhall, which had a four-cylinder 3.7 by 5.1 motor and weighed 1,980 pounds, was 4 seconds slower than the four-cylinder 3.5 by 4.7 Motobloc, which weighed 2,393 pounds.

Although the story of the actual course used for the Gaillon kilometer hill-climb begins only in 1899 the first Gaillon meeting was promoted in 1898 when the course was over 1 mile long—1,800 meters—with the gradient ranging from 3 to 11 per cent. The best time at the meeting was made by Camille Jenatzy in a Jenatzy electromobile, from among thirty-eight motor cars and sixteen motor cycles. The time was 3:52, or 10 seconds faster than did Jamin in a little Bollee car. Owing to difficult turns on the course and the steepness of part of the route it was decided that beginning 1899 the climb would be over a distance of only 1,000 meters with 500 meters in which to make a flying start. Thus the first Gaillon kilometer climb was held December 3, 1899. Nearly 100 cars and motor cycles were entered and seventy-three various vehicles started. While the best time was made by Villemain in a Perfecta tri-car in 1:16⅕, and second best time also made by the same rider on a motor cycle, American cars—steamers—took third and fourth places.

GUIPPONE IN LION-PEUGEOT

The second year, 1900, saw again a tri-car at the top of the winning list. Beconnais in a Perfecta climbed the .62 mile in :55⅘. Brasier took second place in a Mors in 1:26⅘ and Lefevre in a Bolide was third. In 1901 there was a large number of contestants, among which such future famous drivers as Thery, Edge, Osmont, Rigal, Serpollet and Degrais. The best time was again made by tri-cars, the winner being Rigal in a 12-horsepower Darracq in :50⅘. The fastest time made during the meet of 1902 was :40⅕ by Le Blon in a Serpollet steamer. With a smaller car of the same make Le Blon also took second place in :42⅘. The following year the record was again smashed, this time by Rigolly in a Gobron, the time being :33⅗. Henriot in a Bayard-Clement car was second in :38 and Wagner was the winner among the small cars with a Darracq, his time being :40⅕. Rigolly in a Gobron and Baras in a Darracq tied for first place at the meeting of 1904, both going the kilometer in :29.

There was another tie for the prize in 1905, when Baron de Caters in a 120-horsepower Mercedes and Cissac on a 12-horsepower Peugeot motor cycle each covered the course in :31. In 1906 the record was smashed, and ever since it has stood against future assaults. Lee Guiness in a 200-horsepower Darracq covered the kilometer in :25. In 1907 under bad weather conditions Newton in a Napier was the winner in :36⅕. Last year Bablot in a 120-horsepower Brasier won in :26⅕, which is the present hill record.

GAILLON HILL-CLIMB—PAGE IN THE MOTOBLOC

Grand Prix Possibility Next Year

PARIS, Oct. 7—The Grand Prix in 1910 is entirely up to the French makers. If a fair number among them say that they want a race, a big road event will be run. If, however, only a small number of French concerns should favor a contest then the chances are none will be promoted by the Automobile Club of France. Such is in brief the meaning to the decision made by the sports committee of the club and which was made public at the meeting held yesterday afternoon and at which were present such influential members as Rene de Knyff, chairman; Baron de Zuylen, Marquis de Dion, Brasier, Louis Renault, Giraud, Loysel, Gobron, Count de Vogue and Quinones de Leon. The sports committee tentatively decided that a race should be promoted, to be run over a course of not less than 800 kilometers—approximately 500 miles—to be covered in 1 day with no restrictions of any kind to be imposed as to the cars. The entry fee was to be $1,000, $1,600 and $2,000, respectively, for one, two and three cars. But before deciding finally the committee decided to sound the manufacturers and upon the stand taken by them will depend all.

Few manufacturers have yet expressed their opinion publicly, but Gobron, Delage and de Dion have, so it is claimed. The head of the de Dion-Bouton works has stated that while he was opposed to races in the past he now has become a supporter of the racing idea. In fact, it would not be surprising to see de Dion enter cars in the next race. "We cannot permit ourselves to remain inactive," said the marquis, "Inaction harms more or is more detrimental than the big expense connected with racing."

Gobron, who always has been a stanch supporter of the full liberty idea from the mechanical standpoint, also was of the opinion that a race should be run next year. Delage, the small car constructor, is credited with having asked that No. 1 in the voiturette race be reserved for him.

Although the discussion at the meeting dwelt almost exclusively, as far as the race matter is concerned, about the big-car race, it is more than likely that if a big-car race is voted that there will also be one for small cars. At any rate it seems certain that should the club, after all, abandon the idea of a race under its auspices in 1910, that there will be a road race organized in France next year.

PRINCE HENRY DATES SET

Berlin, Oct. 5—The Prince Henry tour in 1910 will be held from June 2 to 7, unless something serious should make it necessary to change the date. This was decided upon at a meeting held at the Imperial Automobile Club, at which assisted delegates from the manufacturers' association and the members of the club's technical committee. The features of the regulation will be that cars of from 8 to 25 horsepower will be eligible, that the minimum weight will be 1,705 pounds, that for every horsepower in excess of 8 a car must add 25 kilos, or 55 pounds, exclusive of extra tires, of which every starter must take at least one within the car. An 8-horsepower car must carry an actual load of 700 pounds inclusive of the extra parts. For each additional horsepower the load to be carried will be increased by 6.6 pounds. The stroke may be .236 inches greater than the bore. On June 1 the cars must all be on hand in Berlin to be checked. June 2 the contestants will drive from Berlin to Braunschweig; June 3, Braunschweig to Kassel; June 4, Kassel to Rothenburg; June 5, Rothenburg to Strassburg; June 6, Strassburg to Koblenz, and June 7, Koblenz to Homburg-Taunus. On June 8 the prizes will be distributed. On the first day there will be a speed trial between Genthin and Magdeburg and on the last day there will be another speed contest.

USE OF TAR IN MAKING ROAD SURFACES

THE problem of preserving the surface of roads and highways and the prevention of dust has been given attention by highway engineers for many years, but not until the year 1905 was the question seriously considered in the United States. The increasing use of motor cars and motor vehicles about this time introduced a new condition to be considered in the building and preservation of roads. Reports from various parts of the United States, England, France, and wherever the use of motor vehicles had become common, showed that the motor car was exerting an extremely destructive effect upon road surfaces.

The macadam road has especially been subjected to this destructive action since it is the form of construction most commonly adopted for modern thoroughfares. The binder or fine material upon the surface of the road is removed by the constant passage of motor cars, thus exposing the larger stones, which become loose and which are either left on the surface or in windows along the sides of the road. The roughened surface presents greater resistance to traction and allows water to percolate to the foundation of the road, thereby seriously injuring the whole structure.

Wear on Macadam Roads

Up to this time the macadam form of construction had been very satisfactory for the character of traffic for which it was designed, namely that of iron-tired horse vehicles. In a perfectly constructed macadam road, the rock used is so adapted to the kind and amount of traffic that the fine material worn off from the rock replaces that which is removed by atmospheric agencies. Under ordinary conditions, it has been possible to maintain a hard and smooth surface at a moderate expense.

The advent of the motor car has changed very materially the character of the traffic. The action of the rubber tires is very different from that of iron tires and practically no dust is worn off to replace that removed by ordinary wear. The great tractive force or shear exerted by the driving wheels of motor vehicles is the main cause of this injurious effect. It has been demonstrated by a series of experiments in which separate speedometers were connected to the front and rear wheels of motor cars that there is a very appreciable amount of slipping of the driving wheels on the surface of the road. This slipping effect throws into the air large quantities of the fine surface material, which is caught by the air currents generated by the car body and subsequently removed from the road by the wind.

Aside from the disintegrating action on the road the dust raised by motor cars is a menace to health and a source of great discomfort to those living near much traveled highways, especially in residential sections.

EDITORS NOTE—"Tar as Applied to the Surface Treatment of Roads" is a paper prepared by Hervey J. Skinner, engineering Chemist of the Arthur D. Little Laboratory of Engineering Chemistry, of Boston, and was read before the American Gas Institute October 20.

Another consideration of importance is the damage to property and instances are recorded where country estates have been disposed of far below their value and farms and orchards abandoned owing to the dust nuisance.

Motor Cars Now Factor

The increasing number of motor cars each year emphasizes their importance as a factor to be taken into consideration, and consequently highway engineers have given careful study to the necessity of making a change in the present practice of road construction, as well as evolving some method of preserving the surface of the enormous mileage of roads already built.

The increased cost of maintenance resulting from these changed conditions has resulted in a search for some method of surfacing other than that commonly used on macadam roads. Various materials have been proposed and used, some of which are temporary in their nature and are simply intended as dust preventives. Others are more permanent in character and are advantageous in actually binding the surface of the road together, thus becoming an integral part of the structure. Of this latter class crude oil and tar are the most important, and numerous preparations of these materials have been used with varying degrees of success.

Use of Coal Tar

Coal tar has been employed in road building for many years. Tar macadam roadways were constructed in Nottingham, England, as early as the year 1840, although under rather crude conditions. Coal tar pavements have been tried in various parts of the United States, but as a rule the results have not been satisfactory, asphalt being found superior as a paving material. In more recent years tar macadam roads have been quite successful and this form of construction is now used to a considerable extent.

The application of tar to the surface of a completed macadam road, while comparatively new in this country, was tried in France about 40 years ago. The results were rather unsatisfactory, but the practice has been carried on to some extent at intervals since that time, especially in Italy and France.

In the United States the first experiment which attracted the attention of road engineers was in the summer of 1905, when a series of careful experiments were made at Jackson, Tenn., by the United States office of public roads in coöperation with the city engineer of Jackson, to determine the value of coal tar in the treatment of broken-stone roads. The widespread interest created by these experiments led to similar ones in various parts of the country, particularly in Massachusetts, Rhode Island, New York, New Jersey and Pennsylvania. The variation in the methods of application and the lack of attention to the quality of the tar and the condition of the road have led to a difference of opinion as to the real value of coal tar in surface treatment.

The methods of applying the tar have varied considerably, but perhaps the one more generally used, especially in the earlier experiments, is to remove the dust and all loose particles by thoroughly sweeping the surface of the road and then applying the tar from an open kettle mounted on wheels and fitted with a portable firebox. The tar is brushed over and into the surface with stiff brooms such as are ordinarily used for street work. The kettle is kept in advance of the workmen and by using two kettles and heating one while the other is in use, the process is made continuous. After allowing the tar to soak into the surface for at least 10 hours it is covered with a layer of sand or fine stone screenings. When several hours have elapsed the road is completed by rolling with an ordinary steam roadroller.

Applying Tar Mechanically

In some places, particularly in Europe, mechanical means have been employed for applying tar. Some year ago the Road Improvement Association held in England a competitive trial in which many of the machines were fitted with ingenious devices. Nearly all of them provided for heating the tar and applying it under pressure by means of compressed air. Some of them were designed for carrying on the whole operation with one passage of the vehicle. The dust and loose particles were first removed by suction and drawn up into a receiver. The tar was then applied by compressed air and spread over the surface of the road by means of automatic brushes. The fine material previously removed was again distributed over the surface and rolled by the steam-heated wheels of the machine. Some of these machines were drawn by horses and others, the larger ones especially, were self-propelled.

The method most commonly used at the present time is a compromise between strictly surface application and tar macadam construction and is known as the penetration method. In this method the surface of the road is broken up by means of a scarifier, new material added to fill ruts or other depressions, and the road reshaped. After a slight rolling without the addition of water, the tar is applied and allowed to stand as in the previous method. A dressing of fine material is then spread over the surface and the road well rolled, with the result that a surface is formed in which all of the spaces between the hard

stone are filled with a minimum amount of tar. A road treated in this manner is similar to one built by the tar macadam process, in which the stone and tar are mixed before being laid.

Many of the trials which have been made with tar as a surfacing material have failed because of a lack of appreciation of a number of important details. The structure of the road, its condition at the time of treatment, the traffic to which it is subjected, the character and amount of tar used, are all important factors which are necessary for successful results.

Road Structure Varies

The structure of macadam roads varies according as each engineer has deviated from the original method of macadam construction to meet his own ideas. As a rule, however, the formation of the road is much the same and is of minor importance in comparison with the actual condition of the surface at the time the tar is applied. The road should be dry and as free from moisture as possible, since water and tar are not miscible in any sense, and if the tar is applied to a wet road, the latter is, so to speak, tar-proof and proper penetration is impossible. In such case, peeling of the surface is very liable to result, owing to the tendency of the tar to remain on the surface as a crust. It is equally important that the road surface should contain as little dust or loose material as possible, as the latter will absorb the tar instead of allowing the tar to be absorbed by the road. This again results in the formation of a crust, which under certain conditions will peel off, leaving the exposed surface of the road comparatively free from tar.

The kind and amount of traffic to which different roads are subjected is very variable and in cases where the traffic is particularly heavy or excessive ruts and hollows are sure to exist. These irregularities in the surface make even rolling impossible and unless repaired previous to tarring water will collect in them and soon exert a detrimental effect upon the tarred surface. In many instances, traffic has been allowed on the road too soon after treatment, and this alone has been the cause of a number of failures.

Character of Tar Important

The character of the tar is of almost equal importance as the condition of the road. Tars vary widely in composition even when produced by the same process. The character of the coal used, the method of carbonization and the temperature of distillation all have a decided influence on the composition of the tar. The value of coal tar in the surface treatment of roads depends almost entirely upon the binding power of its heavy bitumens. Besides these bitumens there are present other substances, such as water, ammoniacal liquor, oil constituents, including the light oils and the creosote or dead oil, naphthalene, anthracene and similar compounds, and free carbon, the proportion of which varies according to the manner in which the distillation process has been carried out.

The presence of water in coal tar has a similar effect as moisture in the road. If a tar containing water is applied to dry road, the latter absorbs the water more readily than the tar, producing the tar-proof effect to which reference has already been made. Difficulty is also experienced in handling tar containing an appreciable amount of water since the water causes foaming, and if the vessel is heated by direct fire the danger of the tar going over the side of the vessel and taking fire is great.

Ammonia is another undesirable constituent, it being alkaline in nautre and having a tendency to form with the oil constituents soluble compounds which are easily washed out by the action of the rain. Naphthalene and anthracene, while they exert no particularly harmful effect as in cases of water and ammonia, have no binding power and their presence simply reduces the amount of bitumens which may be present.

Free Carbon Not Detrimental

Free carbon, like naphthalene, has no detrimental effect, but, on the other hand, it is a useless constituent so far as road treatment is concerned and its presence reduces the binding power and waterproofing effect since it possesses none of these qualities itself.

The oily constituents of the tar are valuable to some extent since they act as diluents. The light oils are more or less volatile and are probably evaporated soon after the tar is applied to the road, but their presence makes the tar thinner and consequently renders their application easier. The creosote oils are also of some advantage as it is claimed they add life to the tar and prevent its becoming too brittle. The amount of tar is another important detail and if more is applied than the road can properly absorb it will remain on the surface and be taken up by the top dressing, with the resulting formation of a crust. Another objection to an excessive amount of tar is that it has a tendency to become sticky in warm weather and slimy in wet weather.

Sand or fine stone screenings have been used as a top dressing in the majority of the trials with coal tar, although occasionally the fine material removed from the road previous to tarring has been used. Stone screenings are probably the best material to use on a macadam road, since they furnish a dressing of the same material as the road itself.

A comparison of coal tar with other road binders and dust preventives is somewhat difficult in the absence of really comparative experiments. Some few trials have been made in which different materials were used on the same stretch of road, but in most cases those experiments using such materials have been on different sections of roadways and consequently the results are not truly comparable.

Another cause for lack of comparative data lies in the great diversity of materials which have been used. As we have seen, the efficiency of a dust preventive is in proportion to its binding power and, therefore, a comparison of only those materials of approximately the same binding power is justifiable. The various dust preventives really form a series from water, which has no binding power, up to coal tar and heavy asphaltic oils, which have the maximum binding power of any of the materials yet proposed.

Only Temporary Binders

Water, salt solutions and light oil emulsions are of the nature of temporary binders and are not to be compared with the more permanent ones such as coal tar and oils having an asphalt base.

The use of oil has been confined largely to the United States, and by far the greater portion of the work has been done in the west, owing to the proximity of the oil fields which supply oils with an asphalt base. In the eastern portion of the United States the cost of transportation has been so great that comparatively little experimenting has been done with oil. Tar has been used quite extensively abroad, especially in England and France. In the United States its use has been confined largely to the eastern and northern states.

Experiments have pretty clearly demonstrated that tar is not adapted for the treatment of gravel or soft earth roads owing to the fact that it does not amalgamate sufficiently well with these materials to bind them together. For roads of this class, therefore, oil has been more successful than tar. The use of tar has been and must be confined almost entirely to macadam or broken stone roads, and for roads of this nature it is probably more suitable than oil.

Oil Is More Penetrating

Oil, as a rule, has greater power of penetration than tar, but its value is dependent in a large measure to its asphalt base, and before its maximum binding power is reached the more volatile constituents of the oil must be allowed to evaporate. This evaporation is a slow process and until it is complete the disagreeable odor of the crude oil will be apparent and more or less objectionable. The use of oil has also received considerable criticism owing to the damaging effect which it has upon clothes and the paint and varnish of vehicles, especially in damp weather, when a greasy, disagreeable mud is formed. Tar, on the other hand, solidifies quite completely as soon as it is cold and does not depend except to a small degree on the gradual evaporation of its volatile constituents for its hardening. It is comparatively free from the objection of being picked up and thrown by the wheels of vehicles. Although it has a decided odor which lasts for a short time after application, this is not particularly objectionable and to most people is much less offensive than that of crude oil.

The Readers' Clearing House

EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.

MASTER-VIBRATOR EXPERIENCES

MADISON, S. D.—Editor Motor Age—I am interested in Vibrator's experience as noted in Motor Age, issue September 30. A master vibrator certainly is one of the best pieces of equipment to put on a four or six-cylinder machine when equipped with individual coil for each cylinder. As Motor Age states, our coil manufacturers have not paid enough attention to this important feature. I have had personal experience with a four-cylinder engine which never did run right until I put on a master vibrator. Besides I have had opportunity to observe a six and two other fours which became different running motors by the same means. In all the above instances, the master vibrator made by the K-W Ignition Co., of Cleveland, O., was used. The Splitdorf peopeople started to make a master vibrator coil over a year ago and I have seen many of these. The Connecticut Electric Co. are getting out a synchronized coil for 1910 that seems very ingenious and effective. The individual coils are non-vibrating, of course, and are fitted with the cut-out button and slips out easily. In the center of the box is the master vibrator, which also slips out easily. The novel feature lies in the fact that should anything happen to mar the efficiency of this vibrator—which should be rarely, it seems to me—one simply pulls out this vibrating unit and reinserts it with the other end up. This brings into action another vibrator, the center section being in reality a double-end coil.—H. H. Frudenfeld.

LOCATION OF TRANSMISSION

St. Joseph, Mo.—Editor Motor Age—Why is it that some motor car manufacturers put the transmission on the rear axle and others place it close to the clutch? I have been informed that it is easier to strip the gears when the transmission is on the rear axle. Is this true? Will Motor Age explain fully the difference? I refer to the sliding selective gear only.—Subscriber.

It is generally maintained among the motor car manufacturers of the world that as long as no practical method of assembling the entire power and transmission plant into one unit has as yet been invented, the next best system is to separate them into two units. Even this is found impracticable in heavy cars, and the regular way of carrying the motor, the gearbox and the rear axle as three separate units, has been rigorously retained. However, it is still a question among the authorities on motor car construction as to which is the best place to put the gearcase. The mode of making a unit of the transmission and motor is, at the present time, the most popular; and a

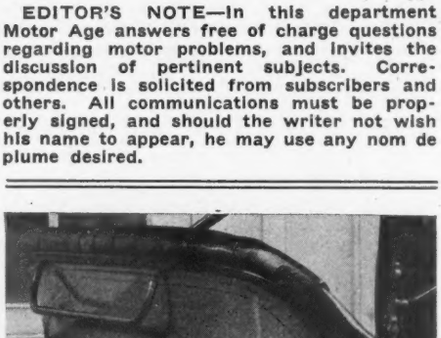


FIG. 1—HANCH'S CURTAIN TUBE

case is known where a prominent manufacturer, after having produced a model with the transmission on the rear axle, removed it in the next year's model. This company has nothing to say against that type of construction, though, and its only reason for changing is that it has hit upon a still better method. On the other hand, the Packard, and the small Stearns cars are fitted with transmissions on the rear axle. A great saving in weight is obtained in combining the rear axle and the transmission; and in the case of the Packard it is claimed that there is also a considerable saving in power through the almost straight-line-drive made possible by this construction. As to the stripping of the gears, Motor Age has been unable to find any confirmation of the truth of this information.

COOLING TWO-CYCLE MOTORS

Reading, Pa.—Editor Motor Age—The reply of Motor Age to J. R. McConnell in the Readers' Clearing House, issue September 23, indicates an erroneous belief regarding the two-cycle engine. Believing as I do that this is the engine of the future, I hate to see it held back by any wrong ideas on the subject. While it is true that it fires twice as often, it also is true that it holds the hot gases but half as long as does the four-cycle. On this account it is just as easy to cool. As a matter of fact, it is the aim of the engine designer to fire at dead center. He advances his spark above that point so the mixture may be fired at or about that point. It is clearly evident that any pressure made before that point is negative work and not desirable. The two-cycle engine usually opens its exhaust port earlier than the four-cycle exhaust valve is opened. This, according to Roberts, is about 59 degrees ahead of dead center, so the hot gases are held but 120 degrees. In the four-cycle the whole exhaust stroke is against the hot gases, so the total number of degrees is 360, or about three times the time that the two-cycle holds them. Against this is the fact that the gases are hotter during the working stroke than after, so that the two working strokes of the two-cycle—short though they are—will heat more than a similar length of the strokes of the four-cycle. But the added time of heating in the four-cycle makes up the difference and makes it as hard to cool as the two-cycle.—Charles E. Duryea.

PLANETARY SET OILING

Irene, S. Dak.—Editor Motor Age—I have a Pierce-Racine single-cylinder car with a three forward speed transmission and reverse. The transmission, clutch, bands and all are inclosed in a case and run in oil. My trouble is that I cannot get these clutches, especially the slow speed, adjusted so they will let go as they should, but will hang enough to cause the car to creep ahead if the brake isn't set, and also makes the whole machine jump and jerk in starting, or when the motor is running and car standing. This makes it unhandy to operate besides using too much power. The clutches seem to run perfectly free as long as the motor is cranked, but as soon as it gets an explosion, trouble begins. Also, I can adjust it so it works fairly well, excepting as stated above, and after letting the car stand over night the bands seem to be too loose, especially the reverse. I am using cylinder oil in the case. It would seem this oil is too heavy, for once I cleaned it all out and washed it out with kerosene, and with kerosene in the case I tried the transmission and it seemed to work better; in fact, what little I tried it that way it seemed to work perfectly. The bands only just let loose enough to barely slip when released. Does Motor Age think this oil being heavy would tend to make it stick? If a different oil is necessary, what would Motor Age recommend?—C. A. McChesney.

There are three common causes for a planetary transmission to act up as you have described above, which are as follows: Improper lubrication, mal-adjustment and mis-alignment. You say that with the use of kerosene the trouble was eliminated and that the transmission worked perfectly. In that event, you un-

doubtedly have found your own trouble. A very thin oil, obtained by mixing kerosene with regular cylinder oil, is generally recommended for transmissions of this type; the proportions of the mixture being given either by the factory or learned through observation and experience. To obtain the proper mixture, start with equal proportions of kerosene and cylinder oil; then if the clutch grabs, increase the amount of cylinder oil and reduce the proportion of kerosene; and if, with a half-and-half mixture, the clutch does not take hold readily enough, but slips for a while, then grabs fiercely, increase the proportion of kerosene until the clutches work satisfactorily.

WINTER CARE OF CARS

Perry, Ia.—Editor Motor Age—Will Motor Age, through the Readers' Clearing House, advise the proper way of caring for a car that is to go in storage for the winter. Should the oil be taken from the crankcase, and how would Motor Age suggest caring for the brass while in storage? —L. B. M.

This is a most pertinent subject, for a car stored in a cold barn should be looked after more carefully than one left in a warm garage. One who is well informed on the subject recommends that all brass parts be treated with three or four applications of good brass polish, which should be left on for the winter while the car is in storage. The steel parts should first be cleaned with kerosene and then "doped" with vaseline. In case the tires are left on the wheels, they should be deflated and the car jacked up until all four wheels are off the ground. In case, however, you wish to take extra good care of your tires, take them off and wrap each one in bandages, which should be well sprinkled with sulphur or soapstone. As regards the oil and gasoline in the lubricator and tank, it doesn't matter much whether they are left in or drained off, although as a precautionary measure it would be safer to drain the gasoline. As to the care of the cylinders themselves, it is suggested that they be filled with kerosene which should be left in as long as the car is out of commission. Of course, every ounce of water should be drained out of the water system, for Jack Frost is only too eager to take advantage of carelessness in this respect.

INSIDE SIDE CURTAINS

Indianapolis, Ind—Editor Motor Age—Since time to which the memory of man runneth not, side curtains for vehicle tops have been suspended from the outside. There seems to be no reason for this beyond the reason that for ages tailors have put buttons on the tails and sleeves of men's coats. To thoroughly appreciate the beauties and conveniences of outside curtains, a person should go through the experience of standing outside of a vehicle in a drenching rain, struggling with stiff buttonholes and various other fasteners, and after the curtains have been duly hung up, find that the shower has practically subsided. I have been through just such an experience with a horse vehicle, and when I purchased my first motor car, in 1904, I made up my mind to try to devise some improvement in the item of side curtains. My top was made in the usual way, but I had the curtains designed to go on the inside, with fasteners inside of the bows. The first attempt was somewhat crude, but infinitely more convenient than the old style outside curtains which I had been used to. To dispose of the curtains when not in use, I rolled them up and fastened them with straps along the inside edge of the top. This was an effective way of getting the curtains out of the road and preserving them, but there were objectionable features, owing to the fact that they had to be removed whenever the top was laid back, and they added overhead weight to the top, which is somewhat detrimental.

I have just purchased a new car, and with the past experience before me, have had a top designed with inside curtains, which is a great improvement over the old one and a decided improvement over anything in the ordinary top line I have seen. The top is made with inside curtains, as before, but instead of using the ordinary celluloid storm front I have employed a standard windshield for the front and have made the inside curtains to match and fasten to the inside of the frame of windshield. The curtains are made in two pieces for each side, and join at the second bow from the front. The appearance and arrangement of the curtains are shown in Fig. 2. In order to properly preserve the curtains when not in use and still have them instantly accessible, I use a light metal tube, which is fastened with straps back of and just below the ledge of the front seat. The location and method of installing the tube are indicated in Fig. 1. The curtains are rolled and not folded, which helps preserve the celluloid windows, and when placed in the tube they do not take up any toe room and are not in the road in any way. It is only a minute's job for the driver, sitting in the front seat, to open the tonneau door, slip out the curtains and suspend them in position, without getting out in either mud or rain.—C. C. Hanch.

REMOVING CYLINDER CARBON

Waterbury, Conn.—Editor Motor Age—In Motor Age, issue September 23, page 21, appeared a communication from J. L. Whitehurst, Baltimore, Md., relative to removing carbon. A metal washrag can be used in the motor with valves in the cylinder head, if the rocker arm which opens the valve is removed so that the valve cannot open, as the cylinder in which the rag is used must not be used for an explosion, as the motor must be run on the other three cylinders.—G. A. Dewell.

NOISY TIMING GEARS

Port Jervis, N. Y.—Editor Motor Age—I have a four-cylinder car of a well-known make which runs very well with the exception that the timing gears are very noisy and clatter all the time. In the early summer the car was fitted with new gears as follows: Bronze on the mainshaft, steel cam, fiber idler, bronze pump and magneto. These ran very well until about a month ago and the fiber gear swelled and stripped. The engine was then fitted new again all round as follows: Bronze on the mainshaft, steel cam, steel idler and bronze pump and magneto. These did not fit perfectly when installed, as there seemed to be considerable play between them. I would like the opinion of Motor Age as to the best gears to put in when I replace them, and what the general practice is among the oldest experienced engine makers. Which will wear the longest, which will run the quietest—all steel, bronze and steel or a fiber combination? Has the fiber gear been perfected so that

FIG. 2—HANCH'S MARMON CAR WITH INSIDE CURTAINS

it is trusty and reliable and not swell? The main gear runs the cam and idler, the idler the magneto. A short time after the last gears were installed, though they were kept thoroughly oiled, they became very noisy.—T. E.

Undoubtedly the most satisfactory gears are steel and bronze, but they are noisy as compared with steel and fiber. Several concerns this year had trouble with their fiber gears crushing and as a result a steel gear with helical teeth is coming into use. These are quieter than the common spur gear type. The trouble with fiber gears in many cases has been due to a poor or green grade of the material. Some manufacturers report a particularly poor grade of this has been sold them and they have had to junk it all.

FIRING IN CARBURETER

Klemme, Ia.—Editor Motor Age—Through the Readers' Clearing House will Motor Age tell me the cause of explosions in a carbureter under certain conditions? For instance, in starting the motor, which is of the two-cylinder double-opposed type, there will be numerous explosions in the air intake pipe just so soon as the throttle is shut down a little. After the car is going at fair speed and the engine is working under ordinary load this will not occur. Again, when the car is running on the road, say 20 miles per hour or faster, and the engine is throttled down for some obstruction, the explosions will occur. No damage is apparent, but the noise is disagreeable and there must be a remedy. I think the carbureter is not at fault, for it is of standard make and in use on many cars. It is not equipped with auxiliary air intake, but is of the ordinary type; once adjusted it remains so unless changed. It has occurred to me that the trouble may be due to a loading up of the intake pipe so when the valve is suddenly shut off the mixture in the pipe is not drawn into the cylinder and explodes from the heat of the cylinder head.—F. A. Arnold.

Explosions in the intake pipe of a motor are characteristic of a weak mixture, too much air and not enough gasoline. If you had given the name of the carbureter it would be possible to give a more definite answer. However, if you close the throttle gradually your trouble may cease. When a motor is running at a high or moderately high speed and the throttle is suddenly shut off or cut down, the few available charges left in the intake pipe are quickly used up; therefore, until the speed of the motor is reduced to such an extent that it is able to get full charges from the reduced supply, there will be a popping in the intake pipe. Back firing may also be due to water in the gasoline; or sticking of the intake valve, due either to its having become sticky with soot, which is readily cleaned with kerosene; to a bent stem or else to a weak spring. If your trouble has developed recently you may look for it among one of these causes, but if this back firing has been characteristic of your machine ever since you have been driving it the previous suggestions will apply.

WOOD VS. DENATURED ALCOHOL

Evanston, Ill.—Editor Motor Age—Is wood alcohol or denatured alcohol better for anti-freezing solutions, and where can either be bought in 10-gallon quantities?—C. H. Wehrstedt.

Wood alcohol, although more expensive, is to be preferred owing to the fact that it generally contains less water than denatured alcohol, and therefore is more efficient as an anti-freezing agent. It also is preferable because it is less liable to attack the hose connections than some of the agents used in denaturizing denaturized alcohol. However, either may be used to advantage and may be obtained from Fuller & Fuller Co., Chicago, or other wholesale drug houses, at 65 cents per gallon for wood alcohol and 65 cents for the can; denatured alcohol is quoted at 63 cents per gallon with the can included free of charge. These quotations are for 10-gallon quantities.

NEW FOUR-CYCLE EXHAUSTING

Winnipeg, Can.—Editor Motor Age—I am sending herewith a sketch of a four-cylinder air-cooled motor on which I should like to have the opinion of Motor Age. This engine is using compressed air from the crankcase to blow out the burned gases from the interior of the cylinder in the same way as the two-cycle engine, and for this purpose has a by-pass B from the crankcase to the interior of the cylinder, a deflector D on the piston head, and an exhaust port in the cylinder side, the same as in ordinary two-cycle practice. Being a four-cycle motor the by-pass B is of course controlled by a rotary valve V serving at the same time as camshaft, in such a way as not to blow out the mixture sucked in through the inlet valve I in the cylinder head. The advantage of this engine should be: First, as there is no exhaust gas passing through the exhaust valve X in the cylinder head, this valve should stay clean and cool and therefore always keep compression; second, as there is no exhaust gas left in the cylinder when the inlet valve opens, there is nothing to expand or ignite the incoming charge. This engine should always get a full volume of pure charge and the speed could be regulated by adjusting the needle in the carbureter because there never could be any popping through the carbureter from too rich or weak mixture; third, if it is true what some makers claim, that a two-cycle engine cools easier than an ordinary four-cycle, it would be absolutely unnecessary to use water for the purpose of keeping the temperature low in this engine.—Albert Rossum.

Motor Age invites criticisms and opinions from readers on this motor.

WHY MOTOR BALKED

Chicago—Editor Motor Age—In your issue of October 7, 1909, on page 21, under the head of "Why the Engine Balked," the last paragraph, it is stated that an owner found himself stranded in a village owing to the fact that he had neglected to slacken back the contact screw of his coil from the close setting he had given to it to use up the last energy in the previous battery, and that the close adjustment had sapped the strength of the fresh battery with undue rapidity, etc. Now, is this not an error? I have always been under the impression that the closer the adjustment of the vibrator the less amount of current consumed.—G. Thompson.

WANTED—SECTIONAL INNER TUBES

Jackson, Mich.—Editor Motor Age—Will Motor Age inform me, through the Readers' Clearing House, if there are any concerns making what is known as a sectional inner tube for tires? Have there been any recent patents granted or applied for on sectional inner tubes?—F. R. Baylis.

Motor Age does not know of any concern at the present time manufacturing such tubes and would like information from any readers on the point.

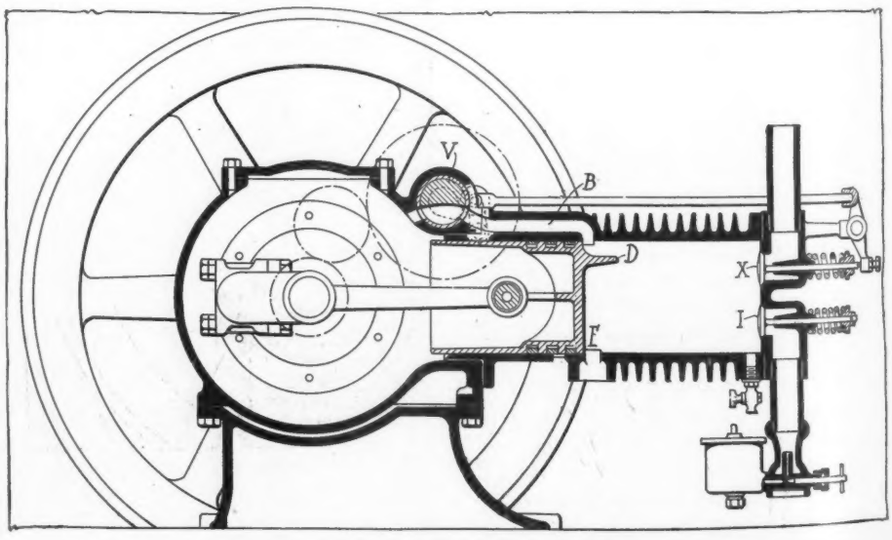


FIG. 3—SCAVENGING FOUR-CYCLE MOTOR

NUMBER GIVES TIRE AN INDIVIDUALITY

STAMPED in raised letters on the side of each casing made by the Diamond Rubber Co. is a serial number which gives that tire individuality and by which its career from the mold to the scrap heap can be traced unerringly. Its conversion from crude rubber and fabric into the finished product which adds so materially to the joys of motoring is duly recorded by means of this number; its transfer from the factory to the branch is duly noted; its consignment to a rack in the stock room is booked and after it has been sold its wanderings may be duly noted by means of the number. Adjustments with the consumer are settled by this and often it is of great service in running down tire thieves. Also it is a protection for the company against price-cutting, at the same time being of benefit to the dealer who upholds the list and to whom the full price of the tire as listed by the company is his bread and butter.

But it has taken several years to develop this system by which the tire is individualized. Much gray matter has been used up and it has been only by the combination of many energetic and resourceful minds that the scheme has reached its present perfection. The Diamond company is credited with being the originator of the system the workings of which have been so successful that more than one of its business rivals are studying it carefully with the idea of using either it or something closely approaching it. Of particular value has been that serial number in holding up prices and through it the Diamond company has been able to protect the middleman from the ravages of so-called leagues which have been formed for the purpose of furnishing consumers with tires and other motoring necessities at wholesale prices, thus cutting the dealer out of his legitimate profits. Of course the manufacturer does not suffer financially from these inroads—he gets his list prices, but the garage man is shut out and in general the trade is demoralized, for if a consumer once buys a tire at a reduced price he believes the tire quotations are inflated, never giving consideration to the middlemen. Therefore the Diamond company is voluntarily spending a big sum protecting its dealers.

The only way a league can get tires from the Diamond company is through some dealer, and it is to discover this dealer that the detective work is done. A recent example of the workings of this system was furnished the other day in Chicago, when the branch manager successfully routed out the dealer who had been supplying a league with tires. A decoy turned the trick, an employe of the company joining the league and paying the membership fee. Once in and in possession of his receipt, he placed an order for an odd-sized tire, specifying a Diamond. There

SHOWING DIAMOND'S SERIAL NUMBER

was only one casing of this size in Chicago and so of course that particular one went to fill the order of the league which came through a dealer. Three hours after it had left the branch it was back again after having been delivered to the dealer, to the league and then to the consumer as represented by the Diamond company employe.

With this evidence at hand the company was in a position to stop the leak. Of course it could not proceed against the league, but it could punish the offending dealer. It could not refuse to sell him tires, but it could charge him consumer's prices and make him pay cash. Once in the bad graces of the company this way the dealer cannot get back into favor until he has secured the signatures of ten reputable dealers to a petition for reinstatement and promises not to offend any more.

This protection of the garage man is regarded as of great value to him, the one most affected by price-cutting being the smaller dealers. With the larger concerns it is more a matter of accommodation to the consumer to furnish a tire rather than with any idea of making money out of the transaction. Therefore the Diamond company feels that if it fights this evil it will help the trade in general as well as maintain its list price, in which it takes a justifiable pride in holding up.

This serial number on the tire often is removed by price-cutters, who seek to destroy the identity of the tire, but in such an event the company is prepared with more ammunition, it being a rule that as soon as the number comes off at that minute the interest of the Diamond company in that particular casing ceases. The guarantee becomes void and under no circumstances will there be a replacement or an adjustment made thereafter. Inner tubes are also marked, but not in the same manner as the casings. In place of the embossed number put on with a stencil stamp the date of manufacture is printed on the rubber in indelible ink or rather a set of numbers which when interpreted gives the date. By this method it is possible to tell the age of the tube, although it is not given the individuality of the casing.

An idea as to the working of the number system may be had by a visit to any Diamond branch, which illustrates the value of it to the company in being able to tell the history of each casing by consulting the files. When a casing comes out of the mold a finished tire there is attached to it a double tag on which the number of the casing appears in two places. Then, with its fellows, the casing is shipped to one of the branches, where it is installed in the stock room awaiting its sale. At the Chicago branch this stock room is as carefully guarded as a national bank. No one but the stock room keeper is allowed in it without an order from the manager and upon entry the door is immediately re-locked. This precaution is necessary in order to work the system, for when the tires formerly were kept in racks at the delivery clerk's desk tags frequently were lost and no one being responsible no one could be blamed. But the new way the stock room keeper is responsible for tag as well as the casing.

So perfectly does the present scheme work out that 5 minutes after an order has been placed with the clerk the necessary red tape has been gone through with and the casing delivered to the buyer. When the order is first recorded the man at the order desk makes out a triplicate order, one of which he keeps. One of the other two is carried to the stock room and the third to the shipping room. Supose a 34 by 4 is called for. The stock room boy goes to the proper stack and selects a casing. He detaches the tag, which is the upper half of the original one. The lower half already has been filed away in a cabinet in the office. He pins the tag to the order and puts his signature to the requisition. Then the casing is sent to the shipping room, while the order goes to the shipping checker, who keeps the duplicate and adds his signature to the registry. Then there is one more step in the routine. The order takes one more step when it goes to the bill desk along with the tag. Then the bill clerk marks the sale number on the tag and the casing number on the shipping order or sale sheet. The tag with the shipping number on it is given to the tag clerk, who picks out the other end of the stub from the stock box. The sale number is transferred to the stock box stub. The other stub is torn up and the remaining one filed away in numerical order in the file box. By this time the casing has been tagged and addressed and is ready to go forth into the busy world. The company has in its possession a complete record of when it was made, when it was sold and to whom.

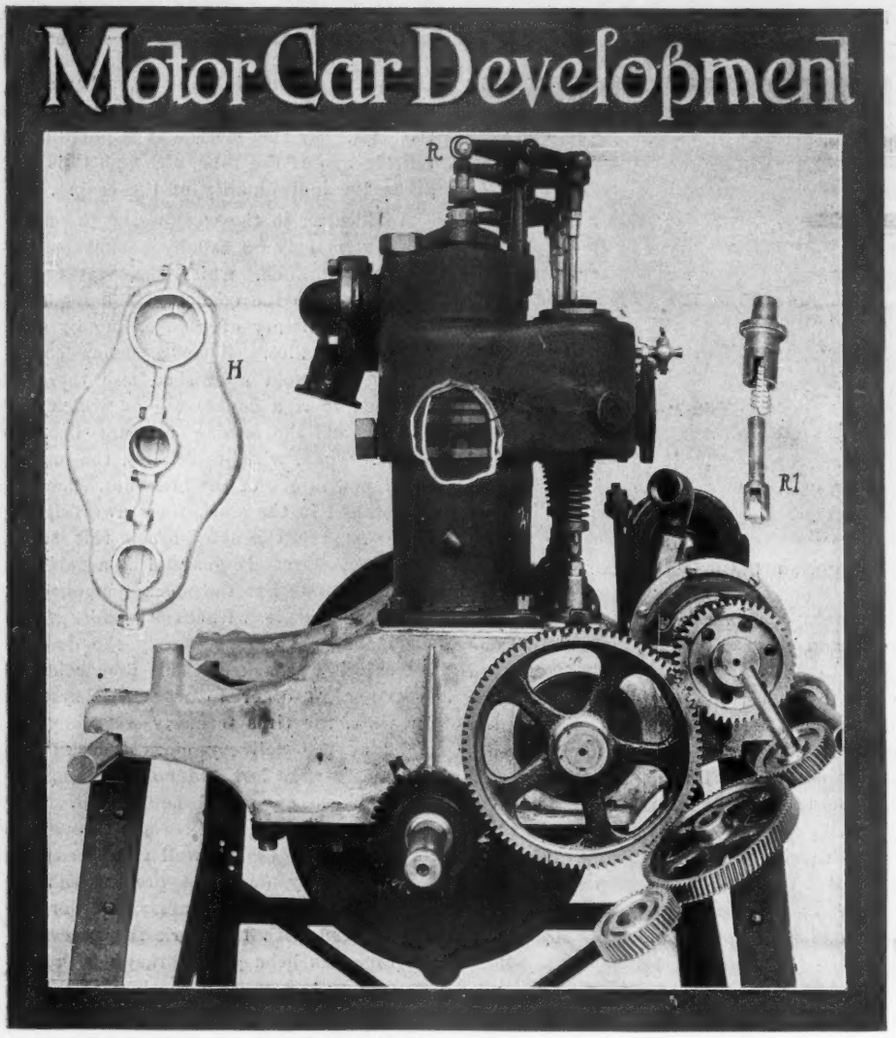


FIG. 1—SHOWING IMPROVEMENTS IN MITCHELL MOTOR

MITCHELL cars are made in three chassis types for 1910, in all of which the same cylinder sizes are used, namely, 4¼-inch bore and 5-inch stroke. The company purposes building 5,500 or 6,000 of these cars, 1,500 of which will be model R runabout—R for runabout—for two or three passengers and made with 100-inch wheelbase; 3,000 will be the model T touring car for five passengers and with 112-inch wheelbase, and 1,000 will be the new Mitchell six-cylinder model S car for seven passengers and with 130-inch wheelbase. The runabout and small touring car chassis have the same horsepower, each being of the four-cylinder type, the formula rating being 28.9 horsepower. The six-cylinder car has a horsepower rating of 43.3. The Mitchell Motor Car Co., Racine, Wis., by using the same cylinder castings on all three of its models is one of the first in the country to adopt this commendable feature of construction. Having only one size of cylinder castings for the three models, instead of three sizes as is the case this year, greatly facilitates the manufacture, in that the different machines for finishing the cylinders can be set at the start of the season and there has to be no changing shop and resetting of these machines until the entire output is completed. This is indicative of a growing trend in the motor industry at the present time in which the manufacturer aims, by facilitating the processes of manufacture, to give more car value for the money than rivals who have not so carefully studied out the economy of factory practice.

Mitchell Chassis Description

The following description applies to the Mitchell chassis. The construction of all three being alike except for slight differences in spring suspension frame size, and

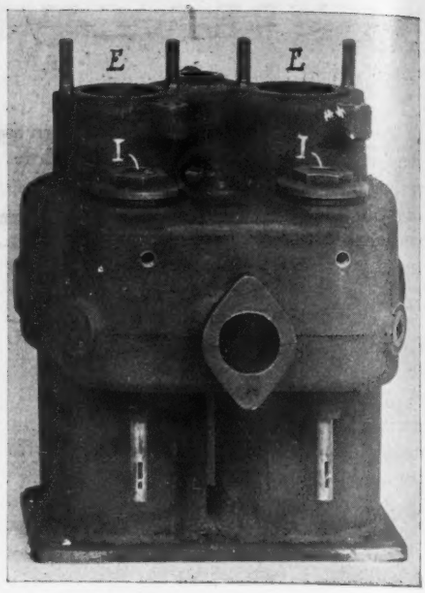


FIG. 2—MITCHELL TWIN CASTINGS

other details which will be referred to later. There have been many changes in the 1910 Mitchell, excepting in the motor, which remains in principle as it was, excepting in that the compnay has acquiesced to popular clamor by casting the cylinders in pairs instead of separately as heretofore. Although now cast in pairs, the design has not been altered, and, as Fig. 2 shows, the exhaust valves E are still located in the cylinder heads, where they are operated by rocker arms, and the intake valves I are housed in an offset chamber on the right side, where they are operated direct by lifter rods from the camshaft, one camshaft opening both intakes and exhaust. Fig. 4 shows the twin casting construction, M marking the gas intake, with the arrows indicating the easy gas passages to the two valves. These valve chambers are completely waterjacketed, the jacket spaces J entirely encircling the chambers. There is a vertical passage in the casting through which the rocker arm of one of the exhaust valves passes. The waterjacketing of the exhaust valve is similarly cared for, the upward extensions in which these valves are housed being waterjacketed right to the

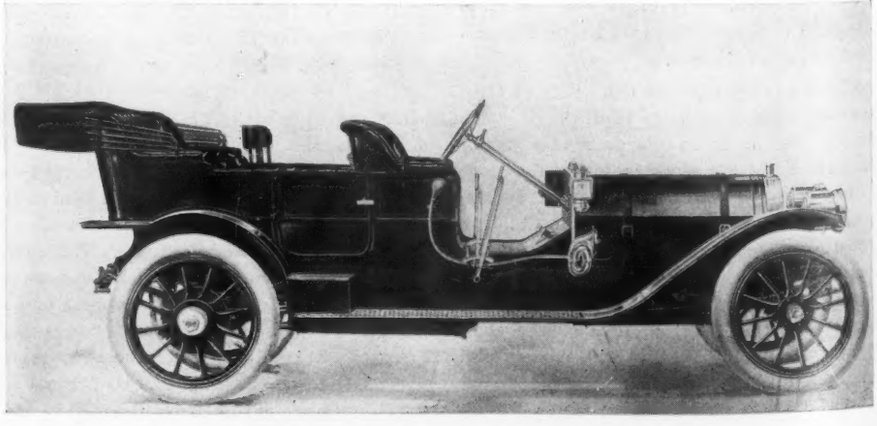


FIG. 3—MITCHELL MODEL S, SIX-CYLINDER TOURING CAR

FIG. 4—MITCHELL CYLINDER CASTINGS

top all around, excepting where the exhaust exit passage is. Using cylinders cast in pairs has necessitated the introduction of a three-bearing crankshaft for the four-cylinder types as against the five-bearing shaft of previous years. The shaft is a heat-treated forging with a large integral flange to which the flywheel is bolted. It is carried on hand-scraped Parsons white brass bushings, which material also is used for bushing the lower ends of the connecting rods.

Crankcase Not Conventional

The Mitchell crankcase differs somewhat from the conventional type in that the upper half, which supports the three-crankshaft bearings, is an aluminum casting, whereas the lower portion is cast iron, the object being that the cast iron of the cylinder castings above and the lower half of the crankshaft beneath will materially stiffen the aluminum half of the case between them. As shown in Fig. 1, a change has been made in that the housing H for the timing gears is a detachable two-piece aluminum casting instead of being integral with the crankcase. The halves are flanged and bolted together, forming an oil-tight housing

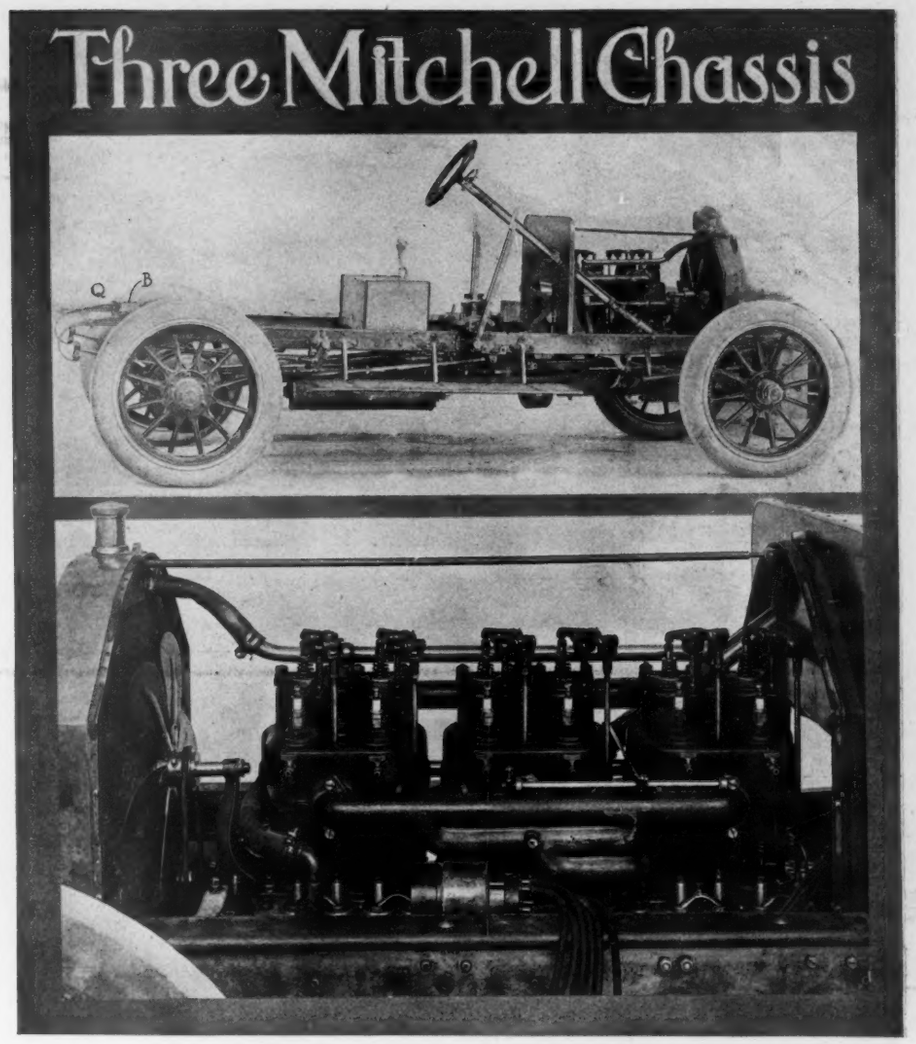


FIG. 5—MITCHELL FOUR-CYLINDER CHASSIS

FIG. 6—MITCHELL SIX-CYLINDER MOTOR

for the three helical metal timing gears, this type of gear being new with the company and used because of the reduction of noise. All of these gears are cut at the factory. The apparent object in making the timing gear housing detachable is that these gears can be examined or changed without interfering with or dismounting any of the remaining parts of the motor.

Two changes have been made in conjunction with the valve actuation, the first being the introduction of rollers R in the ends of the valve rocker arms. These rollers are intended to reduce noise. Rollers also have been substituted on the lower end of the valve lifter rods, these rollers R1 resting continually on the integral cams, the camshaft being for the first time a forging with cams in place.

Some other alterations have been made in the motor. In the lubricating system a Lavigne oiler has been introduced and is located direct on the crankcase at the right front, where it is belt-driven from the crankshaft. Of its six leads two go to the four cylinders—one branching to each twin casting—two connect with the end bearings of the crankshaft, one goes to the clutch and one to the crankcase.

Splash lubrication is relied upon within the cylinders, but a change has been made to assist cylinder lubrication, which is the addition of a fifth ring, Fig. 1, on the center of the piston, which is looked upon to distribute an oil supply over the cylinder walls. This ring also serves to hold the hollow wristpin W in place so that end movement of it and consequent scoring of the cylinders is guarded against.

Changes in Cooling System

A slight alteration in the cooling system, but not shown in the illustration, is

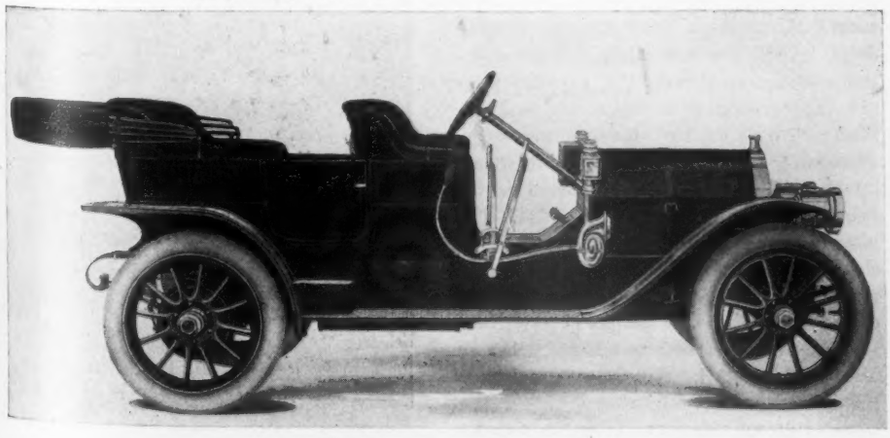


FIG. 7—MITCHELL MODEL T TOURING CAR

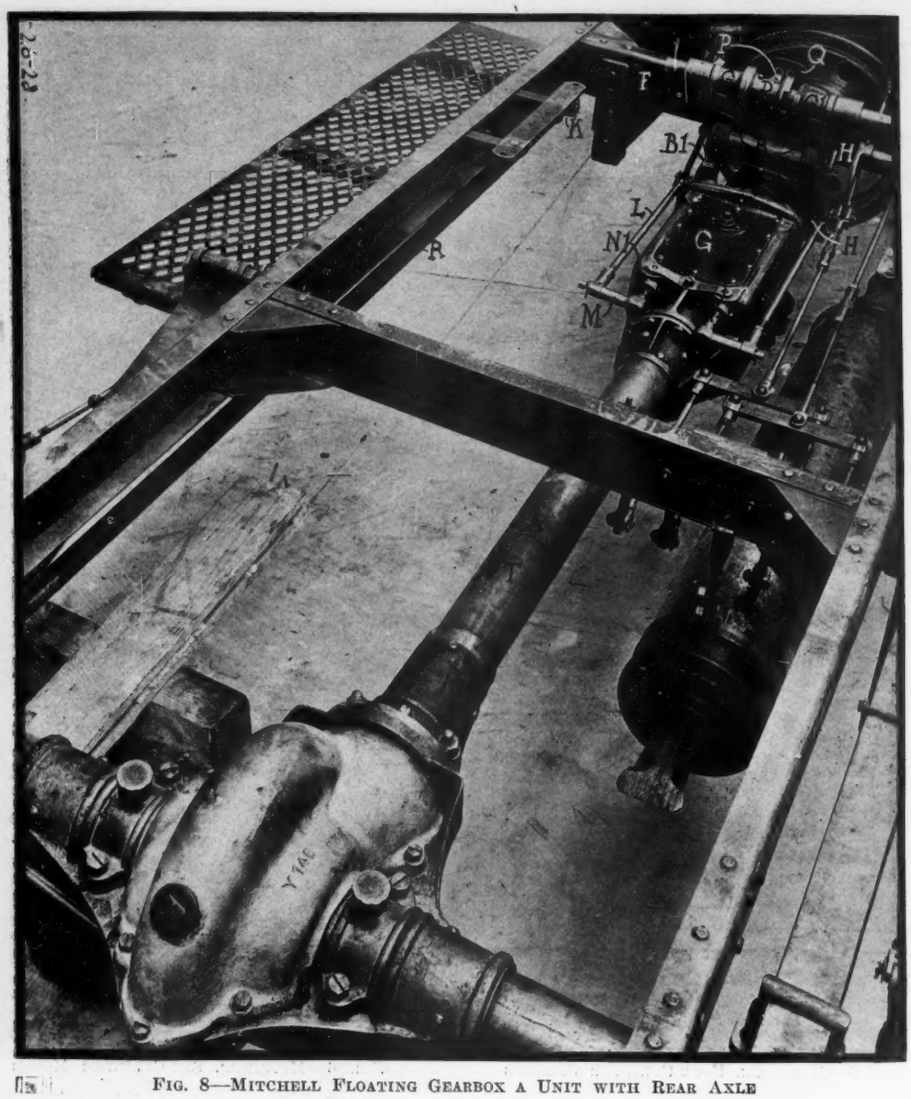


FIG. 8—MITCHELL FLOATING GEARBOX A UNIT WITH REAR AXLE

mounting the fan on the front cylinder casting. This is done through a bronze bracket into which the fan spindle threads. As shown by Fig. 9, front view of the chassis, an entire new design of Mitchell radiator is used with vertical sides and which gives the bonnet a different shape, giving an entirely different body style. In the cooling system a third alteration is the use of a centrifugal water pump in place of the gear type, the centrifugal variety being practically noiseless and free from any danger of damaged gears.

Transmission Now a Unit

Passing to the transmission system of the car, a real change has been made in that the transmission is now a unit with the real axle, so that there are but two units in the car, the first one being the motor with cone clutch incorporated in the flywhel and the second one the gearbox and rear axle. Fig. 8 illustrates this gear system, in which the gearbox G is constituted a unit with the rear axle through the torsion tube T which rigidly bolts at one end of the gearbox and at the other at the differential housing. The gearbox is flexibly supported from the cross member F of the frame through a swinging bracket B with a fore and aft

hinged movement at H and another at H. The gearbox contains a forward neck which is spanned by a ring and which permits of a rotary motion on this support so that should one of the rear wheels pass over an obstacle tending to slightly rotate the torsion tube and gearbox in direction of the arrow A, this does not impose any strain on the support yoke, or ring, giving free scope to the rotation. The double fore-and-aft-hinged movement at H and H is accomplished by the rigid bracket B, supported on the frame, and the swinging bracket B1. This double swing has all been done in the cause of flexibility. Designer Bates has preferred floating the transmission midway of the car because its weight is practically all taken on the frame member F, whereas, were it located immediately in front of the differential the majority of this weight would ride on the rear wheels, thus imposing a heavy dead load on the back tires, against which the designer has aimed to guard. Closely connected with this floating scheme are the long radius rods R hinged to the axle housing and also to a side member of the frame at K, which is slightly in advance of the support of the transmission to the bracket B. This is practically in line with the one universal joint used in the transmission system and which is immediately in advance of the gearbox G. The entire drive from the rear axle to the frame is through these radius rods R, the rear springs being shackled at their forward ends, so that neither driving nor breaking strain is through them. This relieves the spring of considerable strain when driving the car.

Because of its floating support the gearbox G is a one-piece housing with end plates instead of a two-part affair. The set operates selectively, giving three forward variations, there being a symmetrical disposition of the shifter rods N and N1 in the top of the gearbox. These rods enter the box from the rear and carry short cross arms M which connect by intermediaries with arms L, which are atached to hub parts G. Between these hub parts is the double-end clutch D, which is on the change-speed lever shaft, and the H quadrant Q is immediately in advance of this double clutch instead of being at the outside of the car as in the majority of selectively operated sets. The clutch D is shown in engagement with G and with the toe piece P in that half of the H quadrant. The object in putting the quadrant in this position has been to place it where it is entirely free from dust or dirt.

An improvement in the gearset is illustrated in Fig. 11, and consists in the use of a double race of cup and cone ball bearings B and B1 for the mainshaft, the company continuing, however, the use of Hyatt rollers H for the counter or lay shaft. A novelty in conjunction with the Mitchell cup-and-cone ball bearings B1 is that the cups are stampings and made very long. Nickel alloy steel is used in the gears and shafts of this set, the company doing all of the gear cutting in its factory, as well as manufacturing complete both of the shafts for the set.

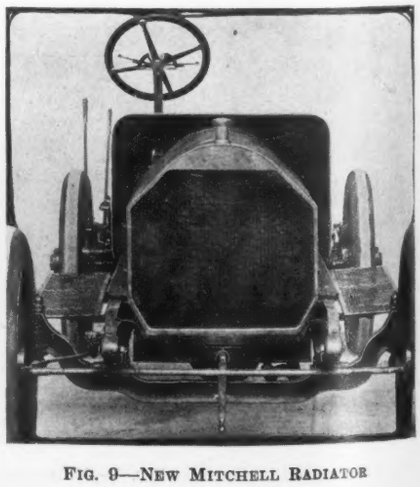


FIG. 9—NEW MITCHELL RADIATOR

A noted change in all three models is the use of a bevel gear differential D, Fig. 10, in place of the spur type of differential heretofore used. The company claims a stronger differential system with the bevels and has installed a complete set of machines for cutting out of the gears for these differentials. On all, except the model R roadster, a full floating type of axle is used. The differential housing is split horizontally and into its hub parts H the axle sleeves S are pressed and pinned, no brazing entering into this construction. Hyatt roller bearings support the differential, but a double type of annular ball bearings B is used in front of the pinion on the propellor shaft. This illustration shows the double brake system—an internal set and an external, both faced with friction fabric. A novelty on the internal set is that the expanding shoes are steel stampings and not castings, using stampings greatly reducing the weight as well as simplifying manufacture. The brake drums on the runabout are 10¾ inches in diameter and 14 inches on the model T touring car. On the six-cylinder type S a rear platform spring is used, but the company has introduced three-quarter elliptics on the four-cylinder models and, as shown in Fig. 6, side view of the chassis, the three-quarter part Q is made very short, and attaches to the frame through a long bracket B. Semi-elliptics front are used in all models. The Mitchell company manufactures all of its frame parts except the side members, it having recently installed heavy machinery for stamping the cross members. No drop is used on the side members, but they are inswept at the dash. The motor is carried on a four-point support on sub-frame members.

Mitchell bodies are of the straight-line type, and those familiar with them in the past will have to become acquainted with the new ones. The new style of radiator and bonnet is largely responsible for this, but in addition all of the cars are using a straight wood dash. There is a continuous mud apron between the frame and the running gear, and the front fenders are horizontal instead of flaring and follow the tire curvature.

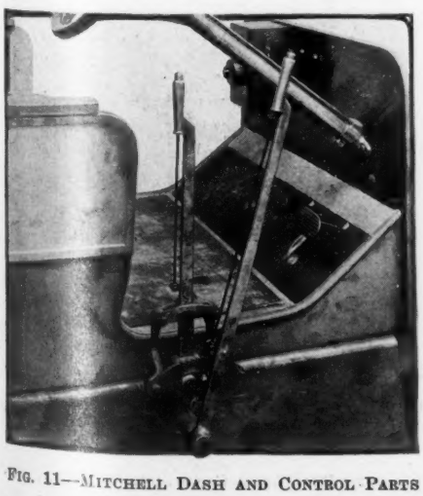


FIG. 11—MITCHELL DASH AND CONTROL PARTS

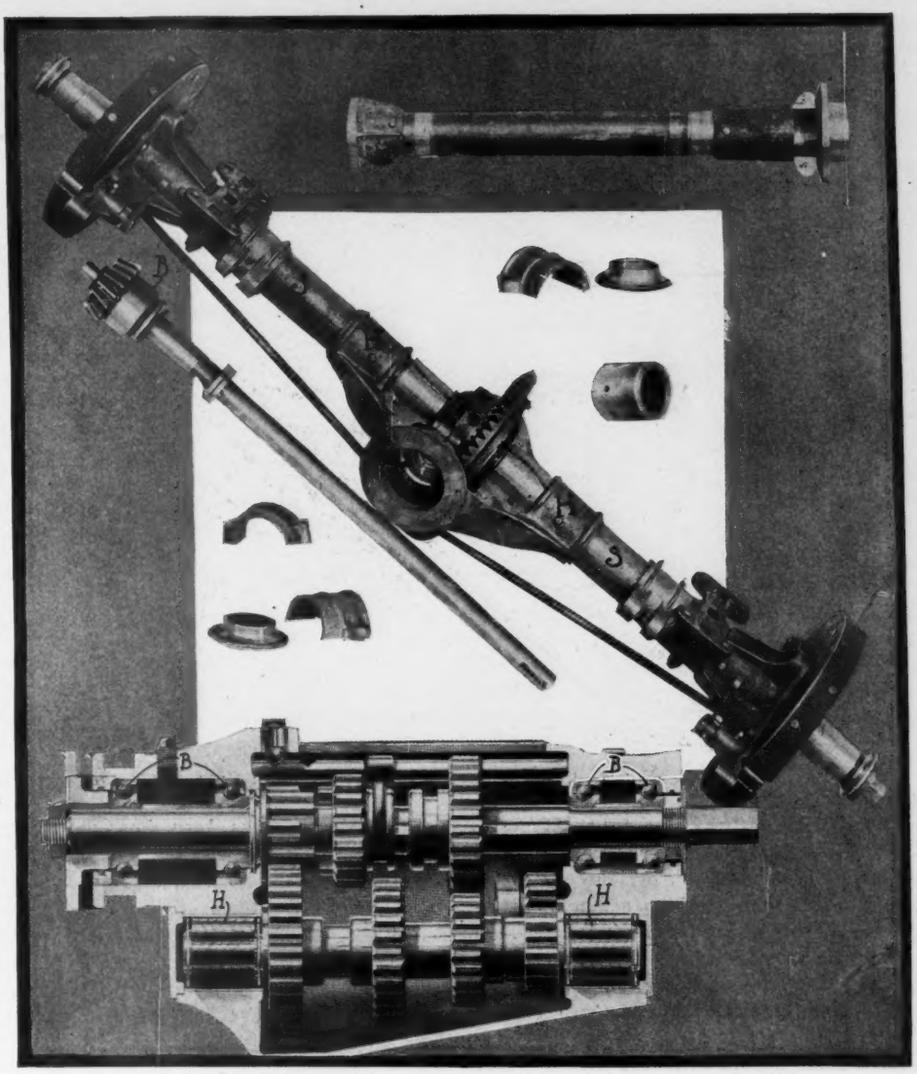


FIG. 10—REAR AXLE AND GEARSET ON 1910 MITCHELL CARS

The Motorists' Bookman

"Motoring in India," by Charles Watney in collaboration with Mrs. Herbert Lloyd, and published by The Car Illustrated, Ltd., delineates motoring in this oriental country as a most pleasant, interesting and attractive pastime, and the most agreeable method of seeing the country, bringing the tourist into a closer insight into the habits of the natives. Touring India, even with all its drawbacks in the way of restricted accommodations, rough roads, bridgeless rivers, lack of supply accommodations, etc., nevertheless is most enjoyable, the one point to bear in mind being that India is a country of distances. This little volume gives much valuable information on the places worth seeing, weather and road conditions, accommodations and everything for the comfort of the tourist. Motoring in India should be done from November to March, though owners of cars in this country use them the year round. Some of the subject titles are: The best type of car for touring, transportation and customs, legal situation covering the license and speed limit aspect, bungalows or rest houses together with a list of such; list of hotels, the carriage of petrol, or gasoline, a scale of prices for motor accessories and repairs, food and outfit, native servants, telegraph and postal rates, coinage, and Hindustani words and phrases covering the ordinary tourist questions and inquiries. Some fifty detailed maps are given, in connection with which the motorist is warned to use care in choosing routes. At the back of the book several appendices are given—A, covering the Indian custom duties; B, giving a list of the chief tire agents; C, three different hotel rates, thus showing that hotel rates should be secured in advance; D, the laundry situation; and E, an official table of mileages over the Grand Trunk route from Fort William, Calcutta, to Peshawar; and F, motor roads in Rajputana.

"The Co-Operator" for October, the official house organ of the Maxwell-Briscoe Motor Co., contains an interesting story by Blanche McManus entitled "The Woman Automobilist and the French Hotel."

Three Rambler Chassis Types

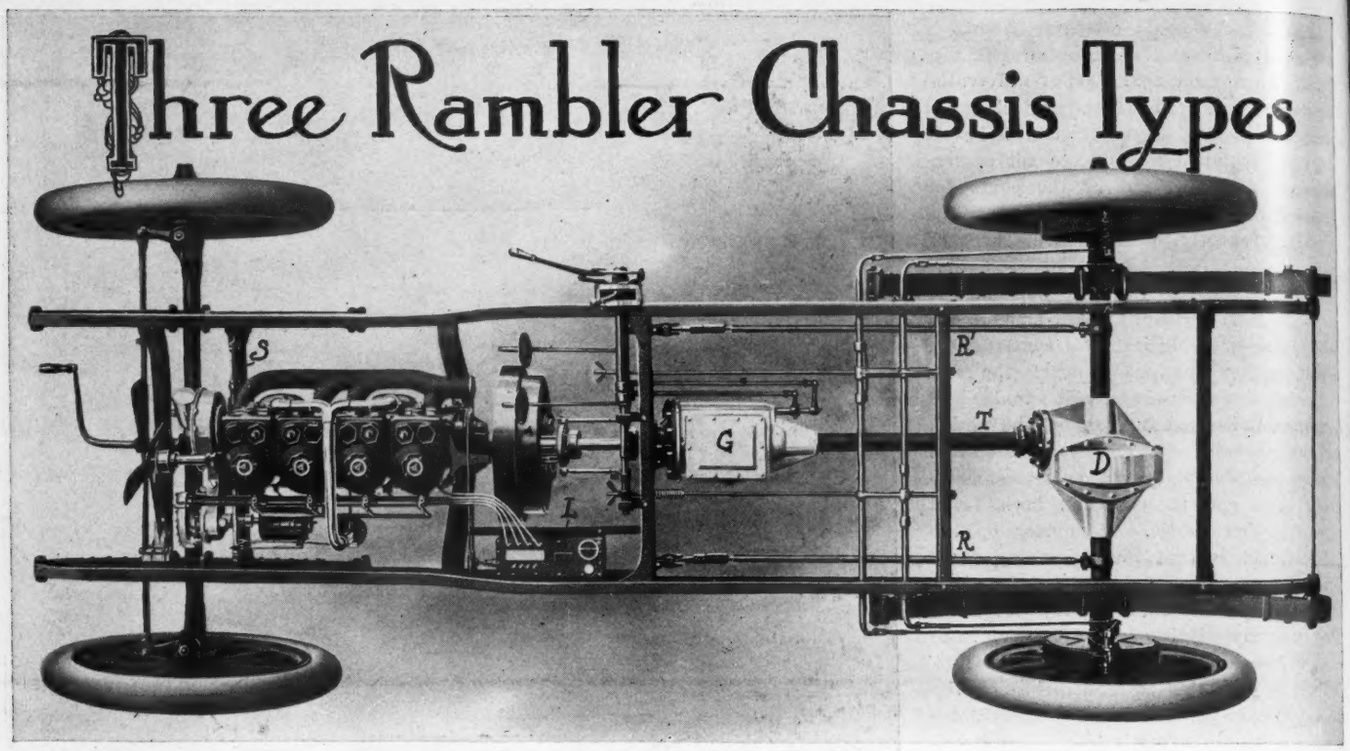


FIG. 1—CHASSIS LAYOUT OF 1910 RAMBLER CARS, SHOWING SEVERAL NOVEL FEATURES

THOMAS B. JEFFERY & CO., Kenosha, Wis., are marketing three Rambler chassis types for 1910, designated respectively Fifty-three, Fifty-four and Fifty-five, all being of the four-cylinder type, the two-cylinder cars which this concern has built for so long not being scheduled in the 1910 classification. In the three chassis types are two cylinder sizes—model Fifty-three using square cylinders with 4½-inch bore and stroke giving rating of 32.4 horsepower, whereas models Fifty-four and Fifty-five have cylinders with 5-inch bore, 5½-inch stroke with a formula rating of 40 horsepower. In all three chassis the motor design is alike, the changes being in cylinder sizes. The chassis layout on all Ramblers is much as during the present season and is illustrated in Fig. 1 in which S shows the transverse tubular support for the front end of the motor, C designates the new expanding type of clutch introduced for the first time this year, and L is the mechanical lubricator located under the floor board at the left and accessible by a door, and G, T, D is the unit combination transmission and rear axle, G being the gearbox for the selective set, and T a torsion tube which rigidly unites the gearbox with the differential D of the rear axle. Drive is transmitted from the rear axle through the long radius rods R.

Model Fifty-three is a five-passenger touring car, model Fifty-four is a five-passenger car which may be fitted with a close-coupled body, and model Fifty-five is a seven-passenger touring car or limousine. Models Fifty-four and Fifty-five are alike in every respect but wheelbases and tire size. Model Fifty-three differs from the two larger ones in that it uses elliptic rear springs. On all the Ramblers the spare wheel is fitted, which has been improved over the present type in that the hub bolts attaching it are tapered, so that the wheel is more readily removed. Model Fifty-three has 108-inch wheelbase and 36 by 3½ and 4-inch tires; model Fifty-four has 117-inch wheelbase and 36 by 4-inch tires, and model Fifty-five has 123-inch wheelbase with 36 by 4½-inch tires.

Two Changes In Motor

The present Rambler motor has been altered in two respects: First, the magneto M, Fig. 3, is near the front of the crankcase instead of at a position designated M1 in this illustration. This forward advance of position has been made possible by moving the centrifugal water pump P to the front of the timing gear housing H, whereas, in the present models, the water pump is to the rear of the sleeve S which is the forward support of the motor. In its location the magneto is supported on a bracket B secured to the side of the crankcase by three studs, and it is driven from an extension of the pumpshaft with ready demountability furnished by a clutch coupling in the shaft. Ever since its entry in the four-cylinder field Rambler motors have used individual cylinder castings, the present ones being of the L type with intake and exhaust valves on the right side, opened by one camshaft. The crankcase is a one-piece casting with particularly large inspection opening on the right side, through which the lower bearings of the connecting rods can be adjusted. The company still continues to use the offset crankshaft, it being placed to the left side of the center line of the cylinder. The Rambler practice has been to offset the crankshaft 25 per cent of the stroke, so that in the model Fifty-three with 4½-inch stroke the offset is 1⅛ inch; in models Fifty-four and Fifty-five the offset is 1¼ inch, although strictly adhering to the 25 per cent rules the offset for the big size would be 1⅜ inch. The object of offsetting the crankshaft is to reduce the angularity of the connecting rod on the explosion stroke so that there is less side thrust of the descending piston on the left side of the cylinder wall. The company claims by manograph readings to show an increase

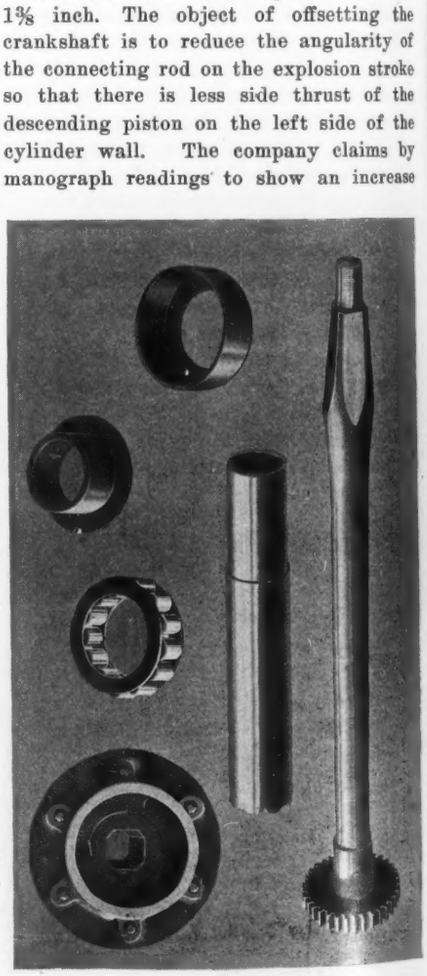


FIG. 2—REAR-AXLE CONSTRUCTIONAL FEATURES

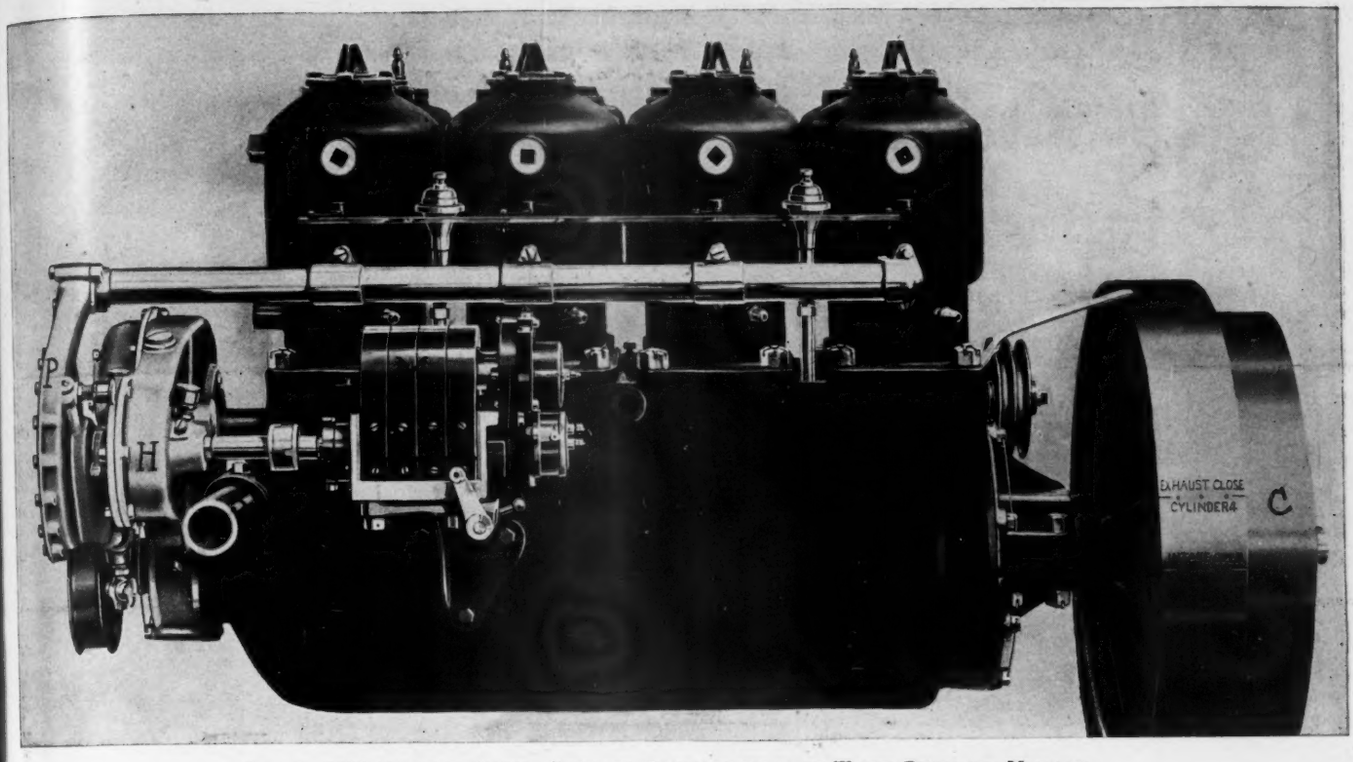


FIG. 3—1910 RAMBLER MOTOR, SHOWING REARRANGEMENT OF WATER PUMP AND MAGNETO

from 4 to 4½ horsepower by offsetting to this extent, with a crankshaft speed of 1,300 revolutions per minute.

With all of its four-cylinder types the Rambler factory has used but a three-bearing crankshaft, which is novelly mounted in a tubular crankcase. Each of the bearings is adjustable as illustrated in Fig. 4, showing one of the end bearings held in the case by the divided plate P, each half of which anchors to the end of the case by three studs. The lower half of the crankshaft bushing is rigidly fitted on the lower plate, but the upper half B is a loose fit in the rectangular opening M in the upper half of the plate. Above this bushing is a wedge W with the top surface flat and the lower one beveled to correspond with the beveled surface of the top of the bushing. Tightening the nuts N serves to pull the wedge W up on the inclined top of the bushing B, thereby taking up any looseness in the bearing.

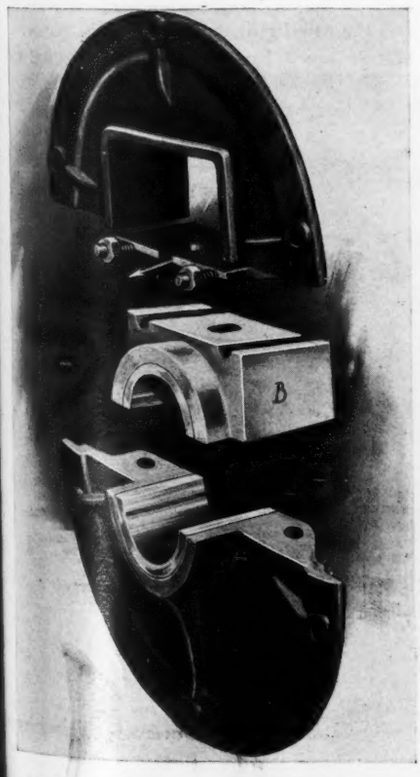


FIG. 4—ADJUSTABLE CRANKSHAFT BEARING

New Exhaust Manifold

A new exhaust manifold is fitted which is designated on the ejector principle and illustrated in Fig. 1. It is a one-piece casting with branches from the several cylinders directing the exhaust at an angle toward the rear into the main pipe, so that back pressure is not set up in any of the remaining three branches when one cylinder is exhausting.

The important change in the transmission system is the adoption of a new type of expanding band clutch which supersedes the cone type used until the present time on these cars. The expanding shoes—there are two of them—are semi-circular aluminum ones with suitable facings and anchored at one end to the carrier connecting with the transmission system and expanded at the free end. The expansion is through a toggle system with ball-and socket joints. A set of three small coil springs regularly spaced around the clutch face is used for engagement. With this new type of clutch end thrust on the crankshaft is eliminated. The expansion of the two shoes is such that it is assisted by the rotation of the flywheel. The only change in the transmission is that the roller bearing which carries the forward end of the mainshaft is now a hinged bearing with a dowel fastening retained in a steel case and provided with means to compensate for all end thrust. The gearset design places the mainshaft directly above the counter or layshaft and with both sliding units on the squared main member. Direct drive is by an internal gear coupling. Roller bearings are used throughout on this shaft.

Rear Axle Semi-Floating

The rear axle continues to be of the semi-floating type with the driveshafts larger than heretofore and a new method used for securing the wheels to the driveshaft. These driveshafts have the differential gears upset on the ends of the shafts, in reality making the differential gears and the driveshafts integral. In the new axle the wheel ends of the driveshafts are also upset and are squared and tapered to receive the forged wheel hubs. This upsetting and enlarging of the outer ends of the driveshafts before squaring them is to avoid reducing the strength of the shafts, which the makers claim would result, from squaring it without increasing the size.

The rear axle carries a double set of brakes, internal and external members. The steering gear continues of the screw and nut type, the nut having been lengthened to increase the wearing surface. The angle of the steering column may be adjusted by the serrated plate holding the column, the teeth on the under side of this plate engaging with corresponding teeth on the metal floor boards. A ball thrust bearing has been added, with increased facilities for adjustment. Springs are of the triple action design, made somewhat straighter than this year and with the second leaf longer extending into the bend of the top leaf in order to support it.

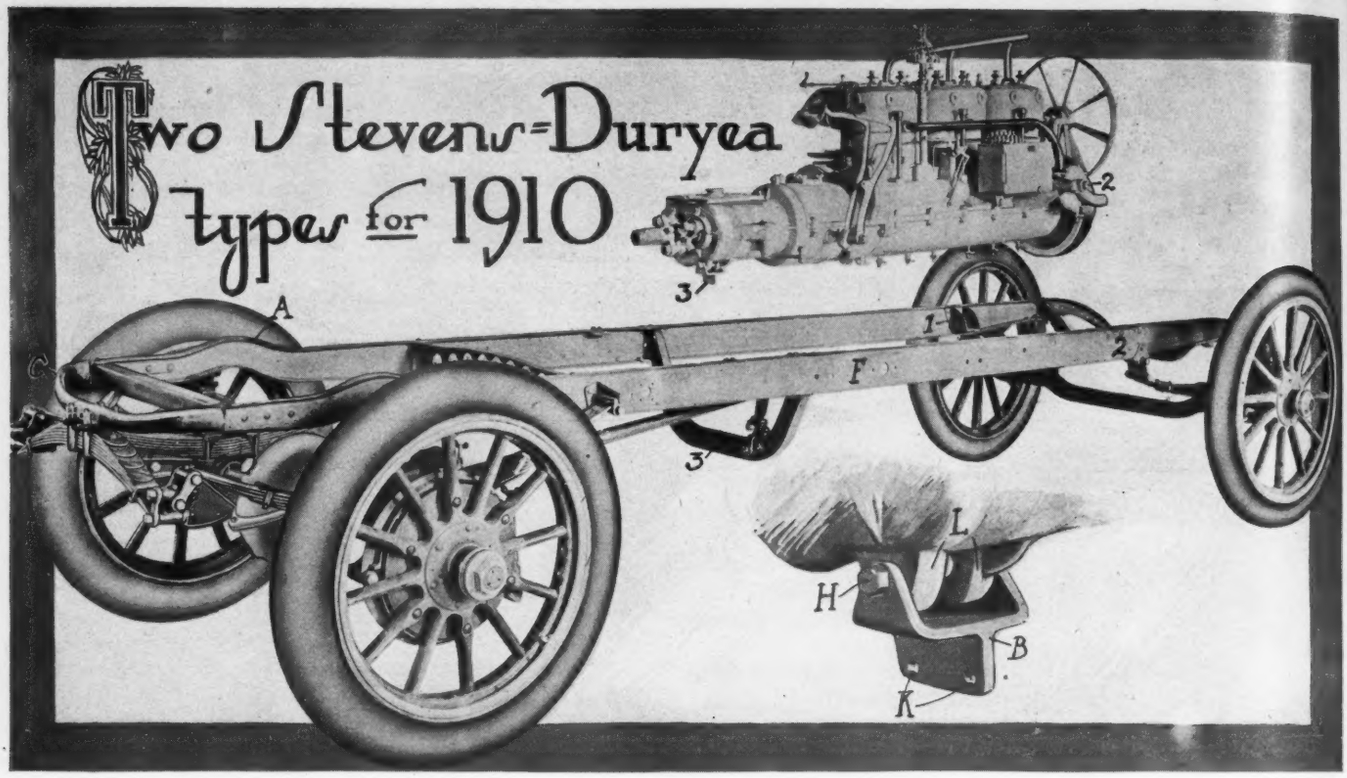


FIG. 1—THREE-QUARTERS REAR VIEW OF STEVENS-DURYEA 1910 CHASSIS

FOR next year the course which the Stevens-Duryea Co., Chicopee Falls, Mass., has been pursuing for the last 7 years will be continued, both the four and six-cylinder models showing scarcely a change over those of the present season, excepting some minor alterations in the four in the rear fenders consisting of sitting into the tonneau sides and the addition of a torsion rod.

Three-Point Suspension Continued

The three-point suspension and unit power plant continue to be the great characteristics of this concern, both of which are illustrated in Fig. 1, a three-quarter rear view of the chassis with the unit power plant suspended above. This power plant has the crankcase K, the clutch compartment C, and the gearbox G a complete unit, formed of five aluminum castings as follows: The upper and lower halves of the crankcase, a casting G forming the tubular gearbox and extending forward constituting the base of the clutchcase and bolting to the rear end of the crankcase, a housing H for the timing gears, and lastly the cover plate C of the clutch. The three points of support are designated 1, 2 and 3, 1 and 2 being brackets secured to the side members of the frame, and 3 on a heavily-dropped cross member. Only two of the points of support on the unit power plant are shown, and are designated 2 and 3 to correspond with the supporting points on the frame. One and 2 are rigid supports, whereas 3 is a rocking or flexible one, illustrated in detail, showing two lugs L integral with the base of the gearbox and attached to the bracket B through the bolt H, affording a lateral rocking support in that the bracket B bolts through holes K rigidly with a cross member of the frame. The object of this rocking support is that strains on the frame are not in any wise transmitted to the power plant which is rigid at but the two points, 1 and 2. This flexibility has been one of the Stevens-Duryea talking points on three-point support.

Chassis Frame Simple Construction

The chassis frame which serves as the skeleton for this suport is a simple, conventional one, the channel side members F of which are straight from end to end, except for a little arch A over the rear axle which allows for increased flexion action of the platform spring support used on both four and sixes except in the runabout and toy tonneau styles, in which semi-elliptics are employed. Both side and cross members are chrome nickel steel parts, there being four of the latter—a dropped one for supporting the radiator, a heavily-dropped central member on which the rear end of the power plant rests, a perforated one in front of the rear wheels, and the usual rear end one, which, however, is reinforced by the curved forging C to which the cross member of the platform spring attaches.

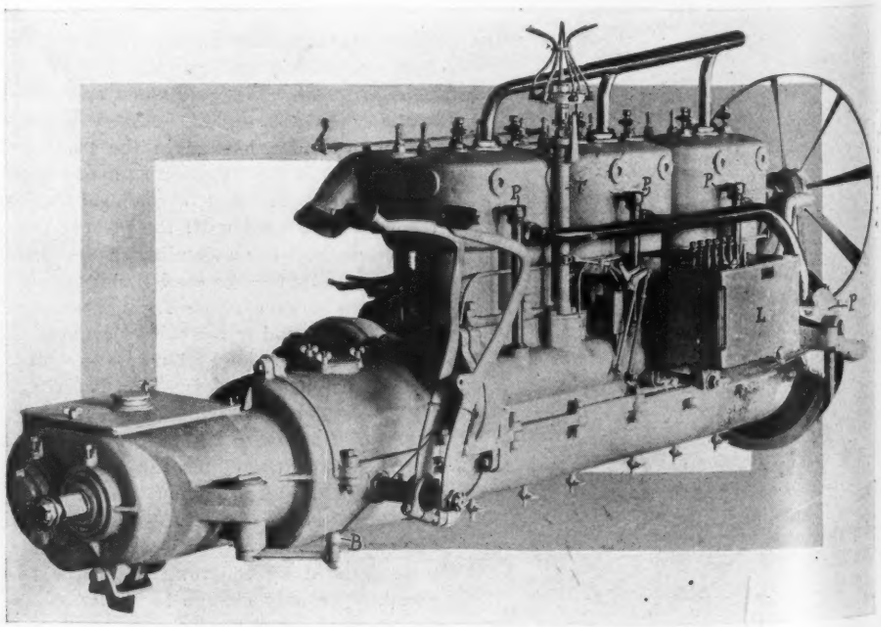


FIG. 2—RIGHT SIDE OF STEVENS-DURYEA UNIT POWER PLANT

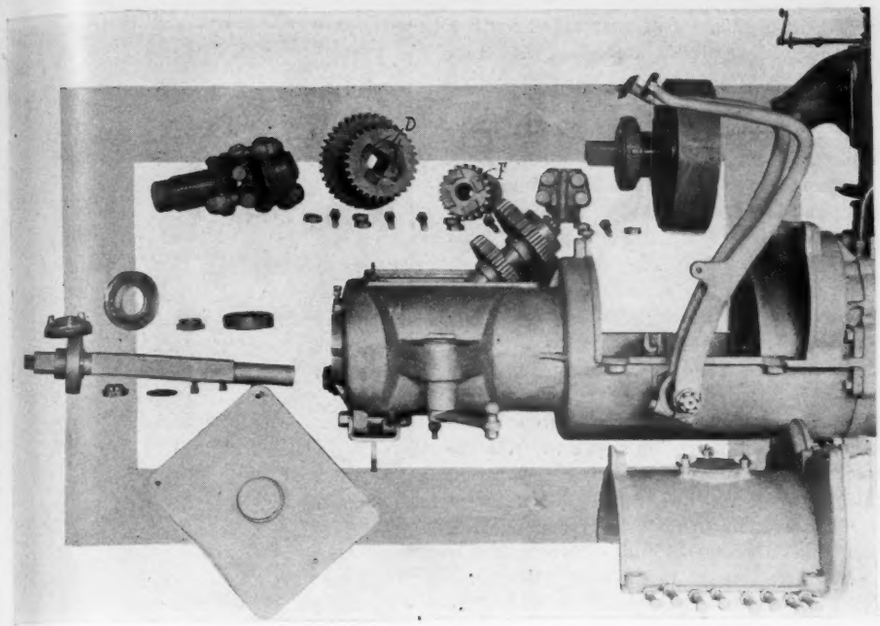


FIG. 3—CLUTCH AND TRANSMISSION OF STEVENS CARS

Figs. 2 and 4 show in detail the unit power plant, the only complete break in it occurring in the vertical plane B where the crankcase K ends and the small half-time gear housing H is interposed between the crankcase and the clutch cover C. Making the gearbox a tubular construction, as well as having the entire crankcase of this design, greatly reduces the weight as well as adds rigidity to the casting. A symmetrical disposition of parts is accomplished, the left side, Fig. 4, containing the Stevens-Duryea carbureter with the magneto well to the rear, this rearward position being due to having the half timing gears inclosed in the clutch compartment whereas the flywheel is carried at the forward end. On the right side, Fig. 2, are the water pump P, lubricator L, and timer T, all driven through bevel gears from a layshaft inside the crankcase and occupying the same position as a camshaft.

L Type of Cylinder Used

The L type of cylinder is used on both the four and six Stevens-Duryea models with intake and exhaust valves side by side and operated from one camshaft. The same size of cylinder castings is used in the four and six design, the bore being 4¾ inches and the stroke 4½. In the six a special nickel steel crankshaft is used, it being carried on four bearings in the upper half of the case. In the four-cylinder type a three-bearing shaft is used.

Lubrication is through a mechanical oiler L, Fig. 2, driven by a bevel gear. It forces oil direct to the four crankshaft bearings, the overflow from which supplies a splash system. Three breather pipes P are fitted, one for each of the crankcase compartments, which also allow of supplying oil direct to these compartments. In the base of the case is a set of six petcocks with standpipes extending up in the crankcase to the splash level and through which excess oil can be drained off.

The Stevens-Duryea carbureter is used in practically the same form as during the present season. As illustrated in Fig. 4, this carbureter has two or three characteristic features. The first is an adjustment from the dash whereby the tension of the spring controlling the valve of the auxiliary air opening X can be varied at will. This adjustment consists in a small pivoted plate R which can be raised or lowered, thus regulating the spring tension. Another feature is that the needle valve N in the nozzle and the throttle T are adjustably interconnected, so that with every opening or closing of the throttle there is a corresponding opening or closing of the needle valve which accordingly regulates the flow of gasoline in proportion to the amount of air required. The intake pipe I is a restricted one bearing a striking resemblance to the intake system of the de Dion in this regard. Gasoline is carried in a 22-gallon tank under the front seat with gravity flow to the carbureter. The tank has a 3-gallon reserve arrangement which is controlled by a couple of shut-off handles extending through the side members of the frame on the left, one of these being the shut-off for the regular capacity and the other intended for bringing the 3-gallons of reserve into use.

The Stevens-Duryea cooling system is conventional, the centrifugal pump P bevel driven delivering the water into the base

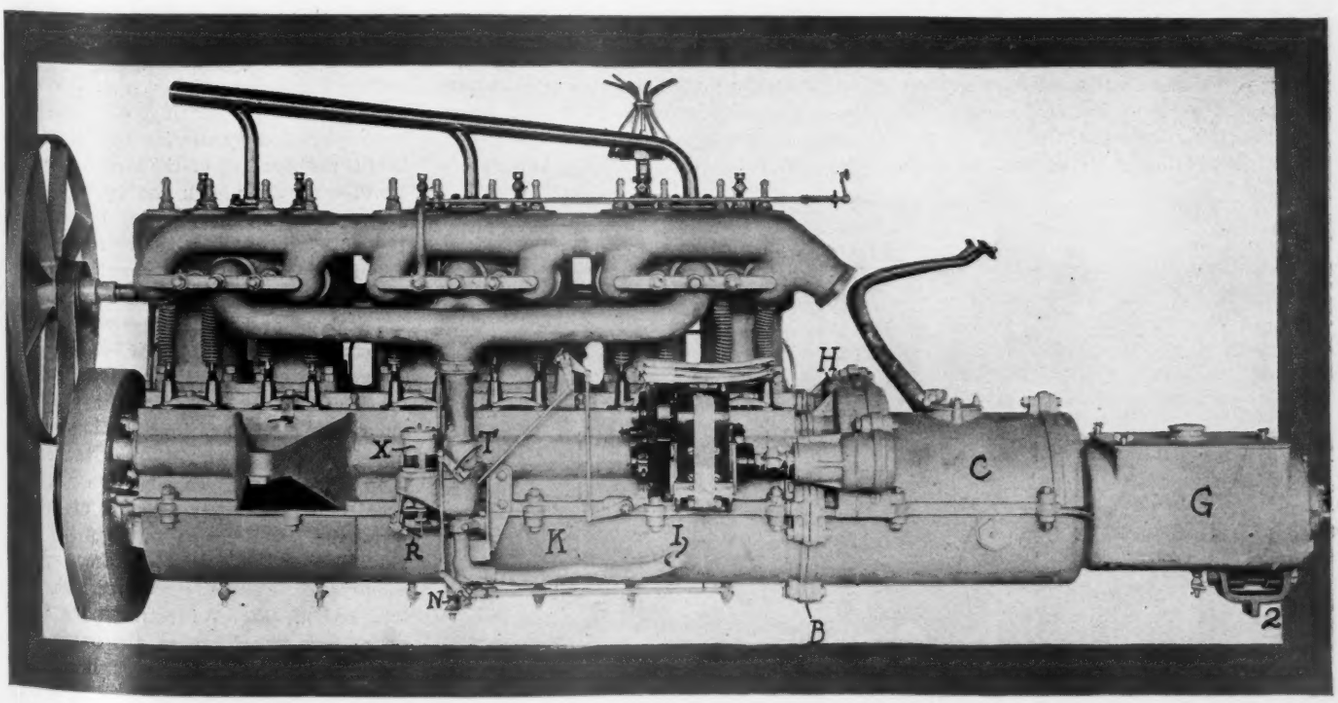


FIG. 4—LEFT SIDE STEVENS-DURYEA POWER PLANT WITH CARBURETER IN PLACE

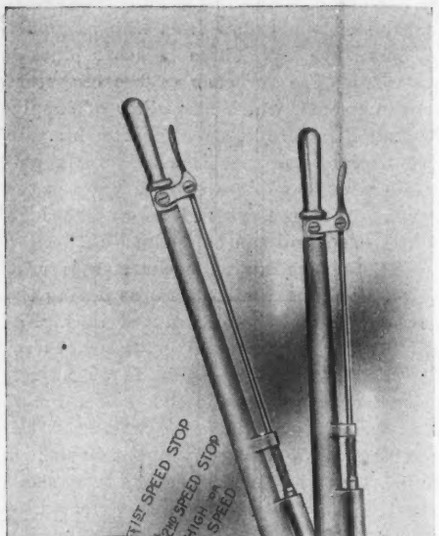


FIG. 5—STEVENS-DURYEA SPEED CHANGE

of the jacket on the non-valve side. Water circulation to the jackets is made imperative by partitions so there is no short-cut flow in spite of the exit from the jacket tops. Additional cooling is furnished by a belt-driven fan supported on the motor base and rotating on ball bearings. The fan belt is a broad chrome leather one, and a spring tension is added.

In spite of the landslide during the last four or five seasons to the selective gearset the Stevens company has continued a progressive type, illustrated in Fig. 3, and which affords direct drive on the high speed, through a set of four faced teeth F on the master pinion engaging with four corresponding depressions D on the sliding unit. This set gives three forward variations and the usual reverse. The gears are cut from chrome nickel steel. Both shafts rotate on annular ball bearings. The company has used a peculiar type of sector for controlling the different speeds. This is characterized by the fact that to go from neutral to low speed, second speed, or to reverse, the latch must be used, but changing from intermediate to high, or from high back to intermediate, the latch is not required, but the lever just pushed forward or back after the clutch is released. The illustration shows the relative positions in the slot showing low speed and reverse backward from neutral, and second and high forward from neutral. The operation of this progressive system is comparatively easy because of this scheme of progression. The theory of this shift system is that not having to use the latch between intermediate and high or low and reverse makes changing very rapid.

Few Changes In Clutch

Although one of the earliest exponents of the multiple-disk clutch, the Stevens-Duryea Co. has made few changes since its original type was adopted. The present clutch contains alternate sets of disks, one secured to a carrier on the crankshaft, the other to a carrier on the transmissionshaft. The driving disks are faced on each side with woven wire and asbestos and the driven disks are steel. The clutch operates without oil, but is entirely inclosed and protected from dirt. Adjustment of the disks is through an adjustment now furnished for the purpose.

From the gearbox a propellershaft with two universals conects with the rear axle which is illustrated in Figs. 6 and 7, Fig. 6 showing the squared rear end of the propellershaft P, V the universal, and PS the short pinionshaft with which is forged integrally the pinion P which meshes with the differential bevel B. The axle driveshafts D are squared at the ends where they enter the differential gears and in

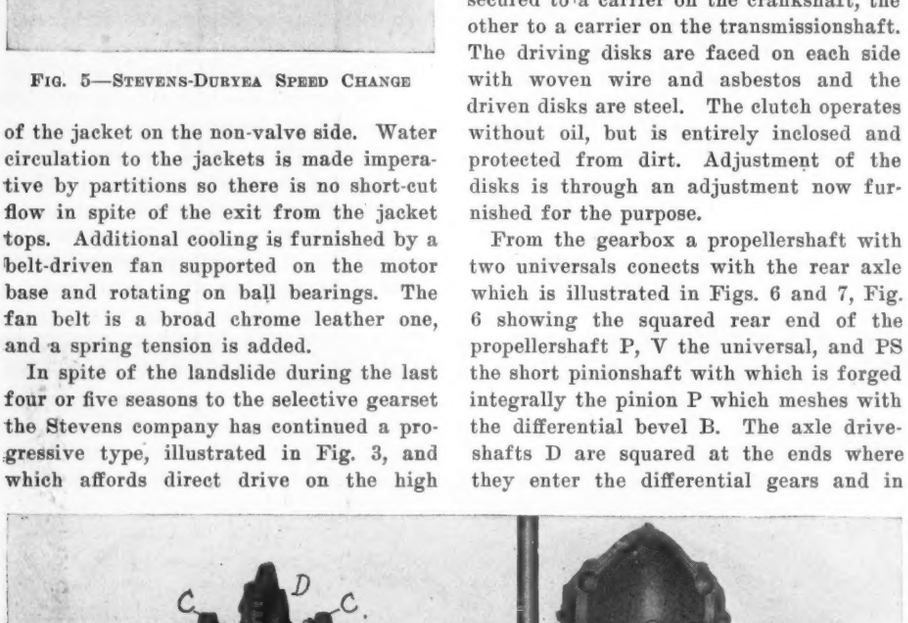


FIG. 7—FLOAT REAR AXLE OF STEVENS-DURYEA

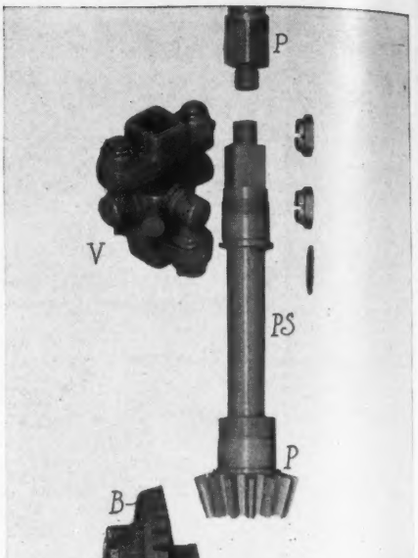


FIG. 6—STEVENS DIFFERENTIAL CONSTRUCTION

fact square fittings of this nature are used from the clutch back to the rear wheels. The clutch carrier having a squared fit on the end of the crankshaft, the union between the clutch and transmission fitting over the squared ends of the respective shafts, there being squared ends on shafts wherever universal joints are used, and the rear axle driveshaft being squared at both ends. The differential D, Fig. 7, revolves as a unit on ball bearings of the cup-and-cone type, and by turning the locking collars C the meshing of the large differential bevel with the pinion can be adjusted at will. As in all full floating constructions the rear wheels revolve on a stationary axle housing, there being annular ball bearings at the inner and outer ends of the hub. Annular ball bearings are also used for carrying the pinionshaft PS, Fig. 6, one being located near the pinions and the other at the front end of the shaft, the separating of the bearings tending to eliminate the angular strain. The torsion bar used is a tubular construction with the usual ball and socket supports at the forward end. The spring seatings Z are revolubly mounted on the axle housing, and compression grease cups are added for lubrication. Fig. 7 illustrates the double set of rear wheel brakes, the external set being quickly adjusted through the wing nuts W. The emergency brakes are applied by a forward lever movement.

Legal Lights and Side Lights

PROPOSED SWISS LAWS

SOMETHING novel is proposed by the Touring Club of Switzerland. It suggests that children be given lessons or courses how to avoid traffic on the streets and country roads. While these lessons might not be of immediate value to the children owing to their age, the intention is to have them educated so that in a few years, when the motor traffic will be much more general than now and when the traffic problem will be much more difficult to solve, that they will be in a better position to face it. The Swiss club believe that the motor traffic problem is yet in its infancy and nothing to be compared with what it will become in a very few years. For that reason it thinks that now is the time to educate the young for the future. Other suggestions are offered by the club for new laws to be enacted in Switzerland. One of them concerns noise-making by motorists. There should be a law, says the club, whereby a motorist could be punished for driving through a city or village in a noisy manner. Another law should be passed making it unlawful to drive through a city or village emitting smoke to excess. All drivers also should be compelled to have written or marked on their driving permit the number of fines or arrests to which they have been subjected. Another suggestion for a law concerns driving in cities. Drivers when on the right side of the street or road should be compelled to keep close to the border of the road or street when taking a turn, while drivers on the left side should keep as near the left side border as possible.

CONDUCTOR WINS CASE

In a Connecticut case a street car conductor sued the owner of a motor car for injuries which he alleged he had sustained by reason of the negligent operation of the defendant's car by the owner's driver. On the trial of the case the plaintiff introduced evidence to show that on the day of the injury, about 9 o'clock in the evening, he was conductor on an open trolley car, and that he was on the running board of the car engaged in issuing transfers to passengers. He was suddenly struck by a part of the motor car driven in the opposite direction from that in which the street car was moving. The trolley car was well lighted and was seen by the operator of the car when he was several squares away, and there was sufficient room for the driver to have passed upon either side of the car without striking the same. On the outside of the car was an iron hook which was used for the purpose of holding the top of the car in place. This hook struck the conductor, cut a deep gash in his leg, threw him to the ground and rendered him unconscious. The court held that under such evidence it was a question for the jury to determine whether the defendant was guilty of negligence and that there was sufficient evidence to sustain a verdict rendered for the plaintiff. The defendant claimed that the damages assessed were excessive, but the court denied this contention and said that the damages could not be computed with any mathematical certainty and that the question of the amount that plaintiff should be allowed for his injuries was peculiarly within the province of the jury and would not be disturbed by the court on appeal. The case was that of Knight vs. the Continental Automobile Mfg. Co., 73 Atlantic 751.

SAYS OWNER IS RESPONSIBLE

In Ingraham vs. Stockamore et all, 118 New York Supplement 399, the plaintiff recovered a verdict against the owner of a motor car and his driver. The facts showed that the driver, with the permission of the owner, was driving the machine in company with certain of his boon companions, when he ran into a doctor's gig which the plaintiff was driving. The trial court instructed the jury that the owner of a motor car was responsible for injuries caused by it by the negligence of anyone whom he permitted to run it on a public street. The supreme court of New York in passing upon this instruction stated that the legal proposition involved was a novel one, but that it found full justification in the novelty of the situation. The court said:

"A motor car being a dangerous machine its owner should be held responsible for the manner in which it is used; and his liability should extend to its use by anyone with his consent. He may not deliver it over to anyone he pleases and not be responsible for the consequences. * * * In cases where a motor car is used without the consent of its owner the latter should not be held responsible; but in those cases where a motor car is operated on the highway with the consent of the owner he should be responsible."

TALKS HORSEPOWER

The Massachusetts highway commission has decided just how the horsepower under which motor cars will be taxed under the new law beginning January 1 will be computed. There has been some doubt on the part of motorists as to how the problem would be worked out. The commission decided that a brake-test would be too expensive and so it sought to get some simpler means, so it has decided upon the regular A. L. A. M. rating for gasoline cars. The commission will require owners to state on their applications the horsepower of their car, also the bore and stroke and the number of cylinders. Then a comparison will be made with a table that has been prepared to see if the rating as given by the owner is correct. When the commission undertook the work of computing horsepower its members were somewhat puzzled as to what it would do in the case of steamers and electrics. An investigation was made and it was found that this would not be a difficult matter. It was discovered by looking over the registration cards of electric vehicles that practically all the vehicles of this type are of less than 20 horsepower, and therefore under the new law they will come under the minimum rating of $5. The electrics above 20 horsepower are nearly all commercial vehicles which also pay a fee of $5. This made it plain that it would be fair to charge all electrics a $5 fee.

To obtain a basis for fixing the price of steam vehicles the commission caused 5,000 registration cards of the present year to be studied. It was found that about 12.6 per cent of this number were steamers, and that only 3.1 per cent were more than 20 horsepower, while 9.46 per cent were under 20 horsepower and will pay the minimum fee. This being the case, the commission will not attempt to compute the power of the steam cars, probably, but will accept the rating given by the manufacturers of the different types.

Another question that was considered was whether the licenses to be issued next year to those who already hold licenses should be considered original or renewals. If they were originals it would cost their holders $2 each. If, on the other hand, they are regarded as renewals the fee is only 50 cents. It is said that the commission is inclined to consider them as renewals in the future.

WOULD RAISE OHIO FEES

State Representative Owen J. Evans, of Stark county, Ohio, announces that he has prepared a bill to be introduced in the next session of the general assembly which will more than double the fees to be charged for registering motor cars. He holds that the present schedule of fees is too small and that the revenue to be derived from the department is inadequate. His bill will be opposed in many quarters, as it is generally conceded that the present schedule of fees is reasonable. Under the present system the state department probably will turn over to the state highway department $100,000 yearly, to be used for road improvement. This amount is the revenue of the office.

FIG. 1—SIDE VIEW DR. CRANE'S HOUSE AND GARAGE

Private Garage Problem Solved by Michigan Man

THE problem of the private garage has been very satisfactorily solved by Dr. A. W. Crane, of Kalamazoo, Mich., who has succeeded in incorporating a garage with his residence and office without in any wise interfering with the appearance of his residence as seen from the street. This triple scheme of residence, office and garage is ideally illustrated in Figs. 1, 2 and 3 herewith, in which Fig. 1 shows a side view of the house with the garage G at the rear, the street being at the left end S, or front of the house. There are two office entrances, E1 direct from the street and E at the end of the house, the entrance for the residence proper being by a separate step leading to the porch P. The garage G is at the rear of the house and accommodates one car, with access through double doors. As illustrated in Fig. 3 it has a similar set of doors at the opposite end or side of the house. Fig. 3 also shows the kitchen entrance, E2, and the residential entrance by way of the porch P. A novelty in connection with the garage, as illustrated in Figs. 1 and 3, is that the roof of it serves as a kitchen porch.

The exact layout of the house, however, is best shown in Fig. 2, where the residential entrance of the porch P is shown as also are the two office entrances E1 and E. The kitchen entrance E2 also appears. It will be noted that the garage, which is 30 feet by 30, has double folding doors at each end. Originally it had a gravel strip through the center for the car, but this has recently been changed to cement. The floor, too, is cement. Lighting is by four electric lights, one in each corner, and at the side adjacent to the house are two radiators for heating purposes. The accessibility of the garage to the house is admirably shown. The entrance leads into a hallway which is in close touch with the rear office, a 10 by 15 room. In front of this are three other offices, with an entrance hall from the end in which any of these three can be reached without interfering with the others. The living room and house proper are entirely separate from the office portion, which is one of the novelties of the design. The utility of having doors in both ends of the garage is apparent when it is understood that a double cement track is laid all around the house with a strip of grass between the tracks. The motor car is driven into the garage at one end and out at the other end. In Fig. 4, a plan of the grounds, the shaded parts are cement walks and the white portions other than those showing the house are grass. It is popular in residential districts to use two cement strips with grass between them from the street to the garage instead of a solid cement walk, the intermediate strip of grass relieving the heaviness of the broad cement strip. It will be noted that in the corners of the lot wide solid cement patches are used to make turning of the car easier. These grounds are not large enough to turn a car in, and consequently running the car all around the lot to get into and out of the garage was the only possible solution the doctor could conceive and he adopted it, much to his present satisfaction.

No elaborate arrangements are included for storing gasoline and oil. The gasoline capacity is limited to 10 gallons at a time and the oil is carried in small gallon cans on shelves on the garage walls. No provisions whatever are made for repair work because it is the intention to have all of this done by outside help and at outside repair shops. The lot is 82.5 feet frontage, 66 feet deep.

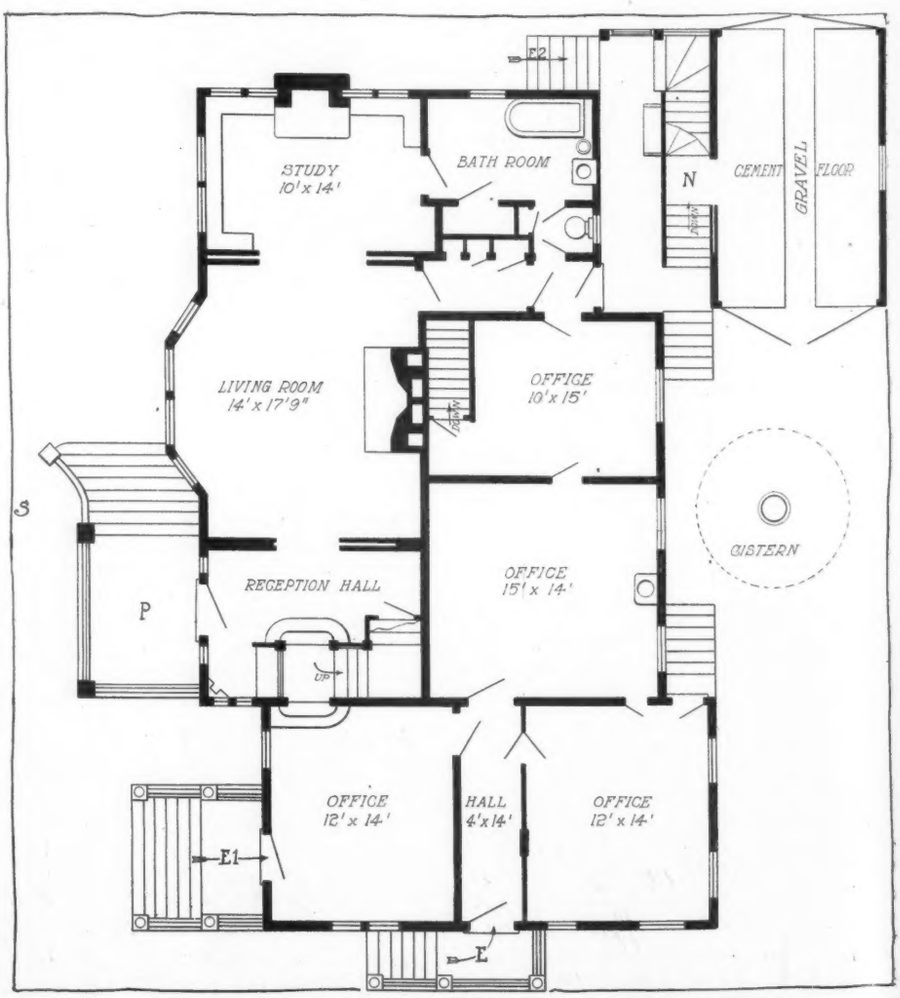


FIG. 2—PLAN OF DR. A. W. CRANE'S HOUSE AND GARAGE

Some Lubricants which Are Used For Motor Cars

(Part III—Concluded)

IN ADDITION to the increased lubricating effect obtained by the use of graphite, it is claimed that the bearings or gears to which it is applied cannot become unduly heated. Many instances have been cited in which a hot bearing has been successfully operated after the application of a small amount of this form of carbon after all other lubricants had failed to obviate the trouble. This brings up the fact that graphite may be said to have no chill, melting, flash, or burning point, and in consequence it never will flow from or evaporate from the surfaces to which it is applied. The fact that this substance is practically non-combustible will be realized when it is stated that it enters largely into the composition of the crucibles in which many metals are melted, and since it can stand this high degree of heat with no physical or chemical change, it is evident that any temperature which may be generated in a bearing cannot cause the graphite to lose its lubricating qualities.

The Joseph Dixon Crucible Co. has a very large plant in which all kinds of graphite products are manufactured. The graphite as reduced by this company is entirely of the flake variety and enters into the composition of a large line of motor car lubricants. Although it was stated above that graphite, by itself, forms a sufficient lubricant in many instances, its use in this manner in the majority of cases is impracticable because of the fact that its light and flaky form allows it to be blown from the moving parts too easily. When added to a heavier lubricant, however, it will be kept in place and perform its functions even after the oil or grease with which it was mixed has worn away. The flake graphite in its unmixed state is often used on pistons, valve seats and stems.

FIG. 3—SIDE VIEW DR. CRANE'S HOUSE AND GARAGE

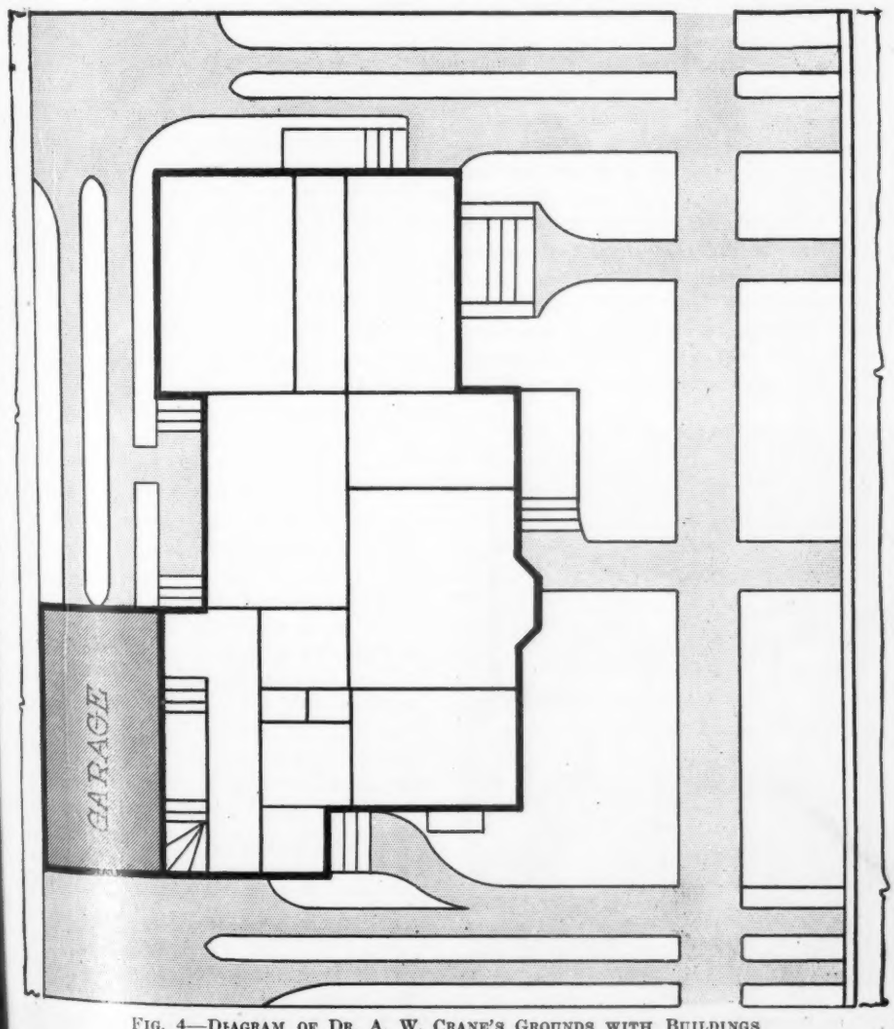


FIG. 4—DIAGRAM OF DR. A. W. CRANE'S GROUNDS WITH BUILDINGS

The Dixon company supplies the flake graphite in either the pure state or mixed with different weights of oils and greases for all parts of the motor car. When supplied in the latter form, the graphite appears in suspension in the lubricant—that is, undissolved or not chemically combined with the oil or grease, but merely mixed with it to form a compound. Of course, the more thorough and complete the mixture, the better will be the results, but it is practically impossible to combine or dissolve the graphite so that it appears in any other state except in suspension. All things considered, however, it is probably fortunate that the graphite is uncombined with the oil or grease, for as the latter acts as the body which serves to retain this graphite as a permanent lubricant, the one will be worn away, leaving the other to fulfill its function continuously.

For light work the graphite is ground into very fine flakes, and in this form and when combined with a light oil, the resulting lubricant is often used for such delicate instruments as speedometers and odometers. The purchaser can add the pure flake graphite to any form of lubricant, but if the substance in question is a heavy grease, it is better to warm it nearly to the melting point so that the graphite can be mixed with it the more thoroughly. As stated before, graphite of the proper degree of fineness can be added to the oil or grease of any part of the car, and when used for cylinder lubrication, the proportion should be one teaspoonful for every pint of oil. It is better to add this to the lubricant in the crankcase.

From the Four Winds

N S E W

Wants Horns Used More—The Safe Roads Automobile Association, of Boston, has issued a letter in which it calls attention to the necessity of more careful observance by drivers of motor cars of that part of the Massachusetts law requiring the giving of a warning signal when approaching intersecting streets, curves or corners.

Enter Savannah-Atlanta Run—Entry blanks are out for the endurance run to be held November 8 from Savannah to Atlanta. The cars have been divided into three classes as follows: Class C, cars costing $1,250 or under, 15 miles an hour; class B, cars costing $1,250 to $2,000, 15½ miles per hour; class A, cars costing over $2,000, 16 miles. Up to last Saturday fifteen entries as follows have been made: Three Packards, three Stevens-Duryeas, two Chalmers-Detroits, one Crawford, two Cartercars, and Acme, de Tamble, Buick, White steamer, Cadillac and Reo, one each.

Millikin Succeeds Rowe—At the annual election of officers of the Automobile Club of Maryland C. Howard Millikin was elected president to succeed Dr. H. M. Rowe. Osborne I. Yellott is vice-president; Frank W. Darling has been re-elected secretary and Thomas Young succeeds Ernest Knabe as treasurer. The board of directors is entirely new, with the exception of James Stone Reese, the other members of the board being Edward C. Wilson, Hugh H. Young, Joseph M. Zamoiski, Joel Nassauer and Edward S. Dickey. At this meeting Vice-President Osborne I. Yellott, also chairman of the road signs committee, stated that the district around Lock Raven, Baltimore county, has been carefully marked with signboards, which have proven a great benefit to tourists. Signs also have been placed on the roads leading to Catonsville and to Towson, in the same county.

Washington Tries Stags—In order to stimulate interest in the club and also to secure new members, the Automobile Club of Washington has inaugurated a series of stag smokers. The first one was held on the evening of October 16 and proved one of the best affairs the club ever has given. The clubhouse was thronged. The club now has 200 members on its roll.

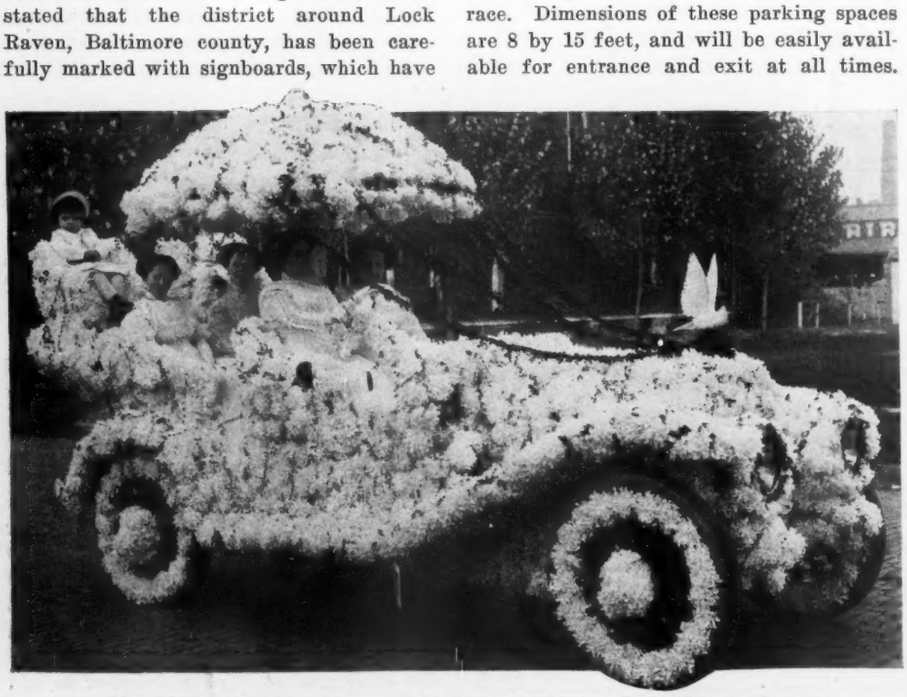
Plans a Local Meet—For the benefit of the Franklin Institute building fund the Kansas City Motor Dealers' Association is preparing an amateur race meet to be held Saturday afternoon, October 23, on the Elm Ridge track. Thomas H. Swope has given $50,000 to the charitable institute with the provision that an additional $50,000 be subscribed by November 1. It is to help raise this additional $50,000 that the dealers propose to give the meet, with only local drivers competing.

Vanderbilt Parking Spaces—For the accommodation of members of the American Automobile Association who may wish to drive to the scene of the Vanderbilt cup race on October 30 and view the contest from their cars a desirable section facing the Long Island motor parkway has been reserved for the A. A. A. uses. The space thus set apart adjoins the judges' stand enclosure on the east side of the course opposite the grand stand, affording one of the best places from which to view the race. Dimensions of these parking spaces are 8 by 15 feet, and will be easily available for entrance and exit at all times. A. A. A. members desiring reservations should communicate promptly with Secretary F. H. Elliott, 437 Fifth avenue, New York city.

Cars Also Shown—In connection with a mammoth industrial exposition, which closed a 10-day session in Buffalo last Saturday night under the auspices of the Manufacturers' Club, the exhibition of motor cars was no insignificant part of the show. Thousands visited the exposition each night and this meant a fine opportunity for the motor car manufacturers to demonstrate their 1910 cars. The Thomas company showed the model M 6-40. A number of 1910 models were exhibited by the Pierce-Arrow Motor Car Co. The stanhopes and roadsters turned out by the Babcock Electric Carriage Co. were shown.

Milwaukee Club Election—Clarke S. Drake was re-elected president of the Milwaukee Automobile Club at the annual meeting of the directors. Faustian Prinz, was chosen first vice-president; George A. West, second vice-president; Arthur C. Brenckle, secretary, and Lee A. Dearholt, treasurer. James T. Drought was again chosen as legal counsel. The club is in excellent financial condition and will proceed to build the clubhouse in the spring. The club now owns 3 acres of land on the Blue Mound road, which will soon become part of a boulevard to be constructed from the end of Grand avenue to the western limits of Milwaukee county and later to form a link in a boulevard to connect Milwaukee and the state capital, Madison.

Novel Scheme of Transportation—Six wheels with cast iron rims have been rigged to a six-cylinder Premier car which will be used on a railroad track for carrying passengers from Chanslor to Stone Canon, Cal. This novel scheme was designed by Walter Chanslor, of Chanslor & Lyon, of Los Angeles. The two towns are situated in central California. Chanslor is about 2 miles from Paso Robles. Stone Canon, 22 miles beyond, is cut off from railroad communication and has no stage. Over a roadbed which has been carefully prepared, the Premier will make regular trips from town to town and seven passengers can be carried at a trip. This service will place Stone Canon on the map and its citizens in communication with the outside world by other means than the laboring burro. When the motor line was proposed by Chanslor, who has large holdings in the town, the residents there were enthused over the proposition and a right of way 22 miles long was speedily granted. Spur tracks will be put in and a freight service to the mines will be maintained



MRS. WILLIAMS, WINNER OF FIRST PRIZE IN SOUTH BEND FLORAL PARADE

shortly. Long stretches of deep sand intervene between the towns of Paso Robles and Stone Canon. It takes many hours to make the trip by wagon. The motor car will make the trip in an hour, or even less.

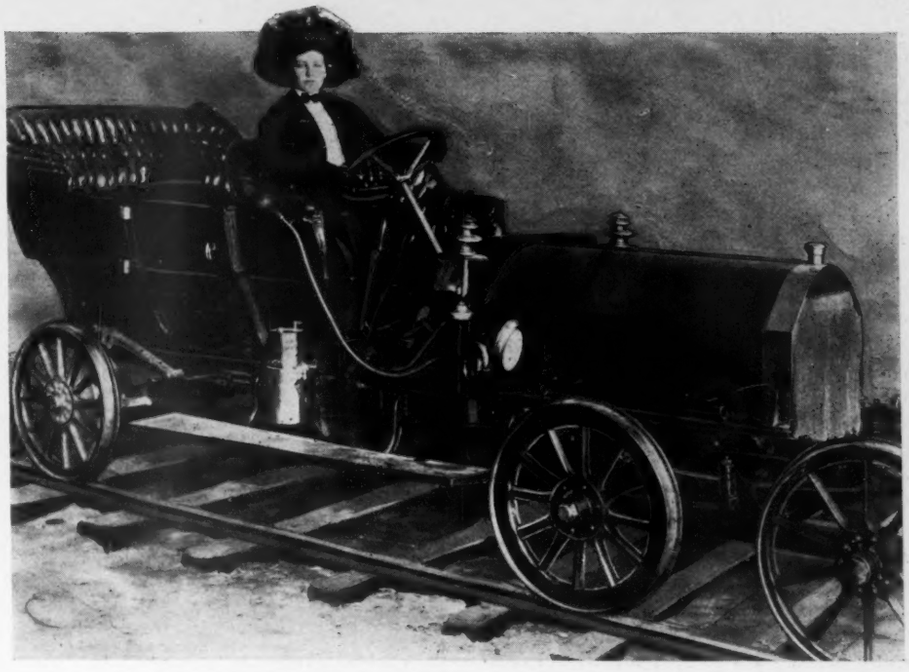
Change in Dates Approved—At a meeting of the Kansas City Motor Dealers' Association the change in the date of the show to the first week in March was approved. The big exposition will again be held in Convention hall. The show committee meets within a few weeks to begin advance preparations for the big affair.

Buffalo Picks Show Dates—The Automobile Club of Buffalo will hold its eighth annual motor car show in the Broadway arsenal in Buffalo, N. Y., February 14-18. Every previous show was held in Convention hall, but the exhibitors have become so numerous that it is now necessary to secure the arsenal, which is much larger than Convention hall. Dai H. Lewis, secretary of the Automobile Club of Buffalo, will manage the exhibition.

Wants Universal Lights—A conference between the fire and police board and the officials of the Denver Motor Club has been called regarding a plan to have repealed all the present ordinances on the subject of motor traffic and to adopt instead an entirely new set of regulations governing the use of motor cars in the city limits. The laws now in force are unsatisfactory to the city from the standpoint of the public and the owners and drivers of cars as well. One of the regulations that the motorists will demand will be that all classes of vehicles be required to carry lights at night. At present this law applies only to motor cars.

Going Into Politics—Cumberland county, N. J., motorists have determined to go into politics in order to bring about the election of members of the board of freeholders who will favor the permanent improvement of the county roads. For several years when movements looking to the improvement of certain important roads in the county have come before the board for final action the pull-backs managed to block them off. The motorists hope to send the blockaders to the discard, and are working night and day to bring about their defeat. The Cumberland motorists hope also to eventually wipe out all the remaining toll roads in the county.

Two Prizes For Franklin—Both first and second prizes have been awarded to Franklin motor cars in the first endurance contest held at Salina, Kan. A silver loving cup for first place was won by Fred Gilman, driving a car belonging to his father, William Gilman, and a silver loving cup of lesser proportions, as second prize, went to George M. Hull. Each of these two Franklin entries made a perfect score, and it was only after a drawing of lots that a winner was evolved. Another Franklin owned and driven by Frank Hageman made a perfect score, but in the drawing did not come in for one of the prizes. The schedule of penalties was made severe because of the fact that the run was a short one, 100 miles, the course being in the form of a figure eight.



SIX-CYLINDER, SIX-WHEELED PREMIER FOR RAILROAD USE IN CALIFORNIA

Baltimore Wants a Show—Members of the Automobile Club of Maryland are making tentative plans for the second annual event to be held under their auspices. This time the club members favor an early winter show.

Remembers the Aged—Through the cooperation of the Automobile Club of Hartford, 100 elderly people were enabled to attend a Sunday church service at Hartford, Conn., who otherwise would have stayed at home. Each car carried an escort for the old people.

Five in Sand Race—Five entries in the Los Angeles-Phoenix race have been made and ten in all are expected. The sand battle is to be fought out between cars of almost every style represented in Los Angeles. The entries to date are: Elmore, with D. B. Rose and C. F. Smith as drivers; Franklin, with Ralph Hamlin, C. S. Carris and Guy Irwin as drivers; Ford, entered by the Standard Motor Car Co., with drivers to be brought from the Ford factory; Buick, with J. K. and Louis Nikrent as drivers; Isotta, with F. C. Fenner in charge, drivers to be chosen later. Each entrant has posted $250 as forfeit with John S. Mitchell, referee.

South Bend's Big Parade—South Bend, Ind., observed its first home-coming and entertained many thousands of visitors from all parts of the country, twenty-seven states being represented. The floral parade attracted many motor cars, which were elaborately decorated. Prizes were awarded for the best decorated machine. Mrs. M. L. Williams received the first prize. She drove a 30-horsepower Buick, the decorations of which were 4,800 white snowballs and ropes of smilax. Mrs. E. J. Roche was given second prize, a gold and silver loving cup. Her Studebaker electric car was decorated with 3,000 pink roses and a canopy effect was produced for the top. Mrs. F. A. Miller was awarded third prize. Her 45-horsepower Buick was covered with yellow poppies on a green background.

Ready For Good Roads Meet—Preparations are steadily progressing for the largest good roads meeting of the year which will be held in Columbus, O., October 26 to 29, when the American Association of Road Makers, the Ohio Good Roads Federation and the Ohio County Commissioners' Association meet jointly. To entertain the 3,500 delegates which are expected to attend the Franklin County Good Roads Association was organized with a membership of 130. Farmers in every section show enthusiasm in the movement. Governor Harmon, of Ohio, has named delegates to represent the state at the meeting. Ten thousand formal invitations to the meeting have been mailed.

Draw Color Line in St. Louis—The Chauffeurs' Club of St. Louis has declared war on negro drivers. The negro chauffeur is to be eliminated from St. Louis if possible, members of the club declare. There are 300 members of the local chauffeurs' club which was organized only a few months ago. The first serious trouble was when the white chauffeurs decided not to drive in the big centennial parade alongside of negroes, and the St. Louis Automobile Club was notified of such intent. The Chauffeurs' Club members had decided that if negroes were to drive cars in the parade they must be placed in the rear. After several conferences the threat to bolt the parade and thereby spoil it was reconsidered, but with the understanding that for that occasion only was the truce to stand.

The Motor Car Repair Shop

Hints to the Amateur

A FEW words in regard to the use and abuse of split cotter pins, and one or two suggestions as to how they may be most successfully dealt with, may be appreciated by amateurs and beginners in the repair business. Split pins are now most generally used with castellated nuts as a locking device. Most mechanics are not satisfied, after slipping a split pin into place, until they have twisted and contorted the protruding ends in a most vicious fashion. Probably more cuts and bruises are suffered by the young repairman as a result of efforts to remove twisted split pins than in any other operation about a motor car, and the only way to eliminate the evil is to stop twisting them. All that really is necessary to keep a split pin from dropping out, is to insert a screwdriver and spread the protruding ends to a reasonable angle as shown in illustration A, Fig. 1. If the ends are excessively long cut them off with a pair of cutting pliers. Don't go to the trouble of bending or twisting them around the nut. Although split pins are so cheap that an assortment should always be carried in the tool kit, it often is necessary that they be replaced, therefore, if they are badly twisted, much trouble will be experienced in removing them, as well as rendering them unstable when used the second time. In the shop, where a generous assortment of split pins usually is on hand, no time should be wasted in trying to remove a split pin whole, nor should a pin be used a second time. Where pins are bent as in illustration C, they should be dealt with as shown. The end A should be seized with a pair of pliers and bent back and forth as designated by the dotted lines B, until it breaks off at the point D; the other end E should then be cut off, if possible with the pliers—otherwise with a cold chisel—and straightened out as shown by the dotted line G. By lightly tapping the end of the pin G, it may be driven out so the looped end may be seized with the pliers and the pin extracted. Never use a second-hand pin in a gear-case of any kind, as the ends have been known to break off and to have been carried into the teeth of the gears.

CAUSE OF HOWLING GEARS

In Fig. 2 is shown a front view and vertical section of a camshaft gear from a four-cylinder L type motor. This gear, in connection with the smaller and wider gear on the crankshaft, has grown exceptionally noisy of late, and in these drawings Motor Age has endeavored to illustrate the cause of the noise. These gears are steel, enclosed within the crankcase of the motor, and lubricated from the splash set up in the case when the motor is in operation. The bushing B is firmly supported in the plate on the front end of the motor which when removed exposes or gives access to the gear A. When this plate is intact and the motor is running, the camshaft CS may be seen to revolve in an eccentric manner as designated by the dotted line D, and it was noted that every two or three revolutions the camshaft would move in or out, in a longitudinal direction, so that at one time the end of the shaft would be in a position relative to the end of the bushing B, designated by the dotted line E, and at another time it would be flush with the end of the bushing; it also was noted that when the shaft was in a position as shown by the dotted line E, the howling noise was greater than when the end was flush with the end of the bushing B. This diagnosis tends to show that the camshaft is bent, which undoubtedly is the case. Now, as to the increase in noise when the camshaft is in the position designated by the dotted line E, the theory is, that when the end of the shaft is flush with the end of the bushing, the tooth F and its two approximal teeth of the camshaft gear A are in a position relative to the teeth G and G1 of the crankshaft gear C, as shown by the dotted lines F and the solid lines G and G1 in the center of the vertical sectional drawing. In this position the tooth F binds on the sides of the teeth G and G1 at the points H and H1 respectively. This being the case, it is plain that when the end of the camshaft is in a position represented by the dotted line E, and the forward edges of the gears are in line, the entire teeth will mesh, the binding strain will be greater, and a louder noise will be heard as a result. The remedy for a trouble of this kind is to remove the camshaft, place it in a lathe, find where it is sprung, then spring it back into shape. This requires the skill and patience of a good mechanic.

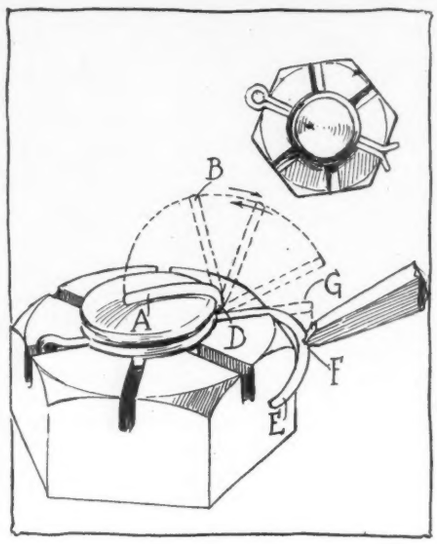


FIG. 1

RUNNING ON A FLAT TIRE

Don't run on a flat tire without at least removing the inner tube. As a rule, it is more practical in case no repair or replacement is available to run on the bare rim. Bare rims will stand hard usage and are far less expensive than tires. By running on the casing the fabric can in a short distance be damaged beyond repair, although from outside appearances the tire would seem to be in fairly good condition. A case is known where a car driven less than a mile with a flat tire part way on macadam and part way on asphalt pavement in which both inner tube and casing were ruined.

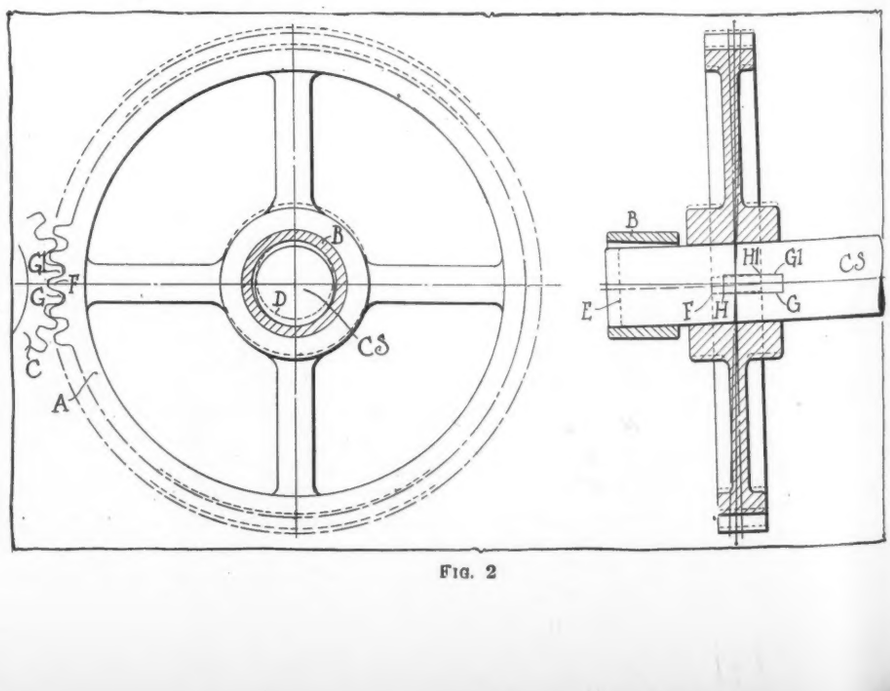


FIG. 2

Development Briefs

NEW ENBLOC MOTOR

THE Continental Engine Co., of Chicago, has brought out a four-cylinder motor, with 4 1/16 by 4½-inch cylinders formed in one casting and integral with which casting is the main base of the crankcase, so that the usual flanges on the bottoms of the cylinder castings are eliminated and there is no bolting of the cylinder castings to the crankcase. This is the first example in American motor construction where the entire crankcase excepting the oil reservoir at the bottom is a unit casting with the cylinder. Another novel feature is the complete cam housing H, Fig. 1, with which the camshaft, cam gears, pushrods, etc., are all in place before the housing is attached to the motor, which is a constructive feature intended to aid in simplicity and accessibility. The spiral cam gear G, Fig. 2, is a unit with it, and this gear is driven from gear G2, Fig. 1, on a vertical shaft at the front of the motor. The entire housing H carrying these parts bolts to the side of the crankcase at a dozen points with four others for the housing of the spiral gear G. At the forward end of the motor is a vertical driveshaft S driven by the spiral gear G1. On the bottom of this shaft is the oil pump OP and the top affords a position for the timer if needed. The water pump is driven from this shaft. Fig. 1, a vertical section of the end view of the motor, shows the location of the intake valve I in an offset at the side and the exhaust valve E placed centrally in the cylinder head. The waterjacket spaces J surrounding the exhaust valve are particularly large. The two-bearing crankshaft is made with hollow crankpins, H representing the drilled part of these, this opening being 1⅛-inch for the first and fourth cylinders and ½-inch for the second and third. The shaft bearings for the connecting rod are 2¼ inches in diameter. The end bearings, K and K1, are Hess-Brights of large diameter. Casting the cylinders in one and using but two bearings for the crankshaft gives a distance of but 18 inches between the main bearings, a total length over the cylinders of 19 inches, and a total length, including the flywheel and the fan, of 31¾ inches. The pistons carry four rings in sets of two in each groove; connecting rods are of H section and the cylinders and main part of the crankcase are machined from one casting in one setting from the bottom by vertical multiple spindle boring mills. The lubrication is a circulation system from the gear pump, the flow from this pump supplying a pool at the base of each cylinder, into which the pistons when at the bottom of the stroke dip. These pools continually overflow into ducts, which flush the main bearings, the oil finally supplying the splash in the crankcase.

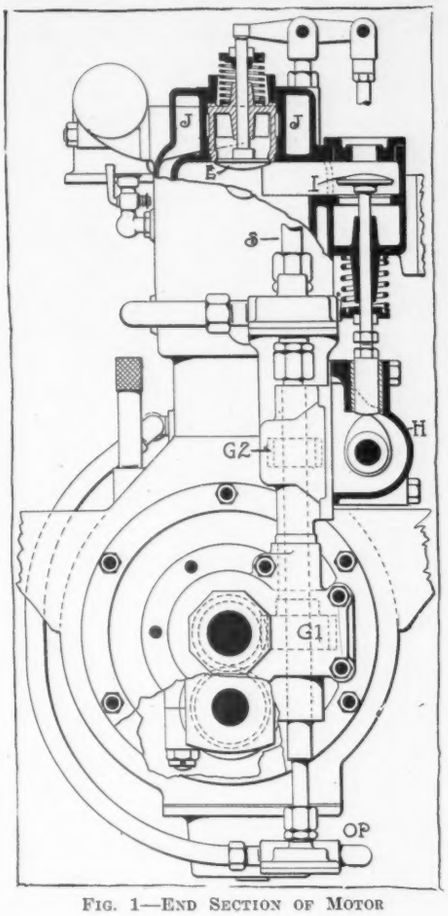


FIG. 1—END SECTION OF MOTOR

MANUFACTURERS' MISCELLANY

The Sam B. White Co., Providence, R. I., manufactures the White flexible valve remover for removing intake or exhaust valves from motors. It consists of a shepherd's hook, the end of which rests on the valve head when the valve cap is removed, and the stem carries a chain which serves as a fulcrum for a short lever, one end of which is inserted under the valve spring washer to compress the spring while the retaining pin for the washer is removed. Using the chain to serve as a fulcrum permits of fulcruming the lever on it between the links, thereby making it suitable for different lengths of valve springs.

The National Sales Corporation, New York, is marketing Red Rib ignition cable which is made with rubber and braided insulation, an option given on either according to the desires of the purchaser. This cable is made for the primary and secondary car systems.

The Willard Storage Battery Co., Cleveland, O., manufactures a modification of its Pullman battery for supplying current to light cars with electricity. Tungsten lights are generally used in conjunction with this battery.

George Grosselfinger, New York, manufactures the Eureka self-closing nozzles for water hoses used in garages. It is intended to save water and reduce water bills. The Eureka is a flexible rubber tip, rubber covered, and is so constructed that the valve closes when released or when the hose is dropped.

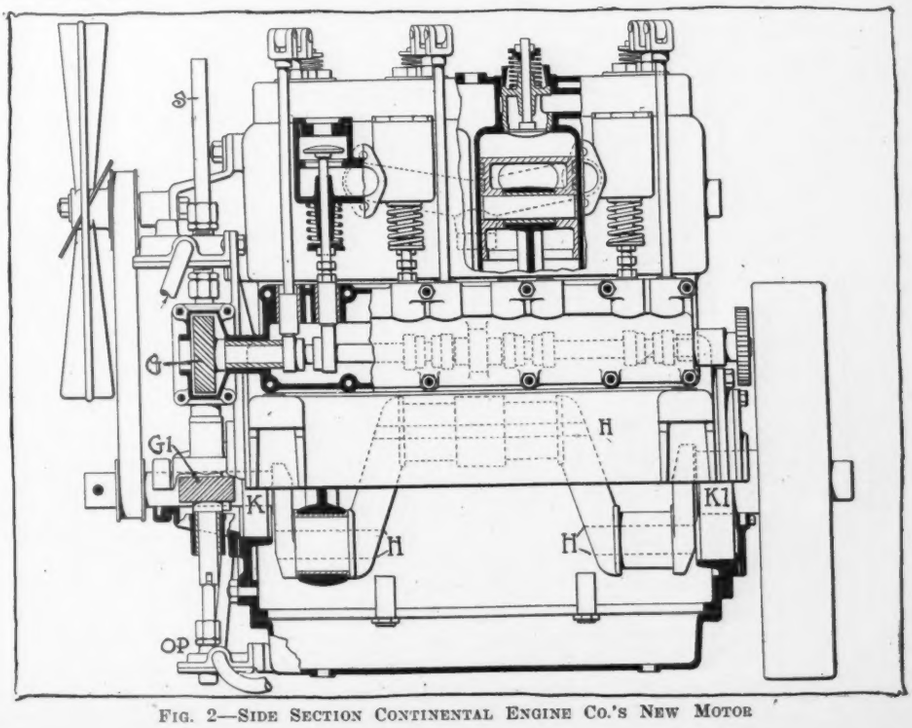
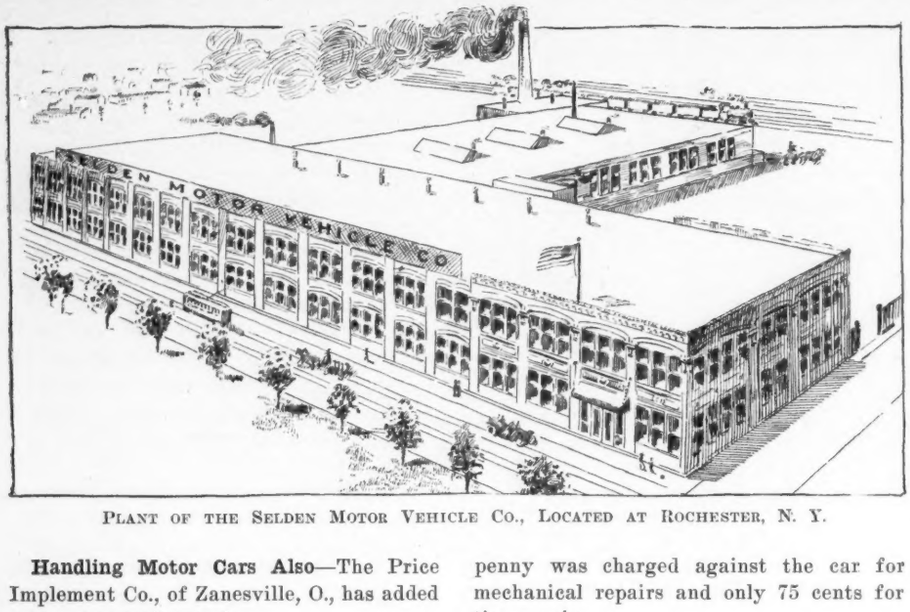


FIG. 2—SIDE SECTION CONTINENTAL ENGINE CO.'S NEW MOTOR

Among the Makers and Dealers



PLANT OF THE SELDEN MOTOR VEHICLE CO., LOCATED AT ROCHESTER, N. Y.

Handling Motor Cars Also—The Price Implement Co., of Zanesville, O., has added motor cars to its stock.

Speedwell in Portland—The Thompson-Cuthbert Motor Car Co., located at Fourteenth and Burnside streets, Portland, Ore., has recently taken the agency for the Speedwell.

Used in Service Work—The Milwaukee, Racine and Kenosha Electric Railway Co., of Kenosha, Wis., has installed two gasoline motor cars for repair and construction use. The wheels are flanged on both edges.

Opening Newport Branch—The Foss-Hughes Motor Car Co., of Philadelphia, which handles the Pierce-Arrow cars in the Quaker City, Providence, Baltimore and Wilmington, Del., will open a new branch in Newport, R. I.

Buy In at Green Bay—J. C. Zimmer and H. C. Malchow, of Oshkosh, Wis., have purchased the motor car department of the Gottfredson Brothers Co., wholesale hardware, Green Bay, Wis. Messrs Zimmer and Malchow will occupy the Gottfredson garage division, which has dimensions of 65 by 101 feet, and will remodel, rebuild and paint cars in addition to doing a general agency and garage business.

Demonstrating Statistics—The Hudson company's San Francisco agent received his demonstrator on August 1 and up to September 30 the car had been driven 3,635 miles, both by the dealer himself and by prospective customers. An accurate record was kept of the gasoline and oil consumption and all the time put in on the car by employes accurately kept track of the same as if the car had been one that they were taking care of for an owner. The record shows that the total expense for oil, mechanical repairs, tire repairs, etc., amounted to $52.50. Not one penny was charged against the car for mechanical repairs and only 75 cents for tire repairs.

New Mitchells Shipped—The first carload of 1910 Mitchells was shipped from Racine, Wis., on October 15, bound for New York.

Rockwell Goes to Toledo—F. S. Rockwell, from the General Motors Co., of New York, has arrived in Toledo to succeed A. W. Norris, who for a year and a half past has had charge of the Buick branch.

Has Garage Also—Henry R. Hooper, Philadelphia agent for the Crawford, has acquired the Powell garage, at 1404-6 Ridge avenue, which he will conduct independently of his agency, with Frank H. Ramsey as manager.

Peckham Is Building—The Peckham Motor Car Co., of Dayton, O., is erecting a garage and showroom for handling the Peerless and Buick lines. The plant will be completed about November 15. The building will be 70 by 100 feet and three stories in height. The basement will be given over to the storage of motor cars and the second floor to electrics. A showroom will be on the first floor. The establishment will also have shower and tub baths.

Stoddard Change Made—The Hamilton Auto Co., the former representative of the Stoddard-Dayton car in Philadelphia, has been succeeded by the Stoddard-Dayton Auto Co., of Philadelphia, which will retain the former concern's old quarters at 206 North Broad street until its new building at 253-55 North Broad street is completed. C. G. Stoddard, of Dayton, O., is president of the new company, William P. Berrien vice-president and general manager, and A. J. Hamilton, Jr., secretary and general manager. The building now being erected for the accommodation of the new company will be three stories high, with a frontage of 50 feet on Broad street and a depth of 120 feet to Watts street.

Gumpert Adds the Regal—Fred Gumpert, of Portland, Ore., will handle the Regal car in addition to the California Tourist.

Deserts Quaker Row—The Studebaker company's Philadelphia branch abandoned the row last week, occupying its big newly-remodeled building on Eighteenth below Spring Garden street.

Again a Maxwell Agent—Fred W. Friis, of Kenmare, N. D., has taken the agency for the Maxwell line for 1910. Mr. Friis reports there are in the neighborhood of forty cars at Kenmare, a new town of about 2,000 population. He claims the best natural roads in the state.

Denver's New Taxi Service—The Auto Service Co., of Denver, has been organized with headquarters at 1435 Cleveland place. The company consists of Eaton McMillan, John B. Livezy, Paul S. Whitman and H. W. Thomas, and a squad of Premier, Packard and Thomas cars will be utilized.

Joo Succeeds Gould—Raymond S. Joo has been oppointed manager of the New England Motor Co., the newly-formed firm in Boston that is to handle the Rainier in that city. He succeeds George T. Gould who was named a week ago as the Boston representative. The firm has opened its headquarters in the Motor Mart.

Croxton-Keeton State Agent—The Sanford Motor Car Co., of Denver, organized this week with Louis Sanford as president and H. A. Labardee, sales manager, has taken the state agency for the Croxton-Keeton. The company has temporary headquarters at 323 McPhee building, but will secure a location on Broadway in a short time. A taxicab service will be established as soon as a permanent location is secured.

Another Hoosier Maker—With an authorized capital of $100,000 the Indiana Motor and Mfg. Co. has been organized and incorporated in Indianapolis. The general offices will be located there, but the factory will be established at Franklin, where the factory building of the American Harness and Leather Co. has been taken over. It is the company's intention to manufacture a four-cylinder 35-horsepower five-passenger motor car to sell at a moderate price. Designers are already at work on the model and the first cars will be forthcoming about January 1. John C. Billheimer, auditor of state, has been elected president of the company and Donald J. Hayden secretary. Charles B. Riley has been named as general manager, and John

E. Matson, until recently superintendent of the American Gear Co., superintendent and engineer.

Is a Ford Agent—Bert Shipley, of Lancaster, Wis., will be a Ford agent in southwestern Wisconsin next spring.

North Yakima on Map—The Yakima Auto Co, of North Yakima, Wash., has let the contract for a $11,000 garage to be erected on Yakima avenue, between Third and Fourth streets.

Grout Agent in New York—The Imperial Motor Vehicle Co., of 212 West Seventy-sixth street, New York city, has taken the agency for the Grout for Greater New York and surrounding territory.

Wishart Succeeds Sawyer—N. H. Wishart has been appointed Pittsburg manager for the Flentje Shock Preventer Co. He succeeds F. H. Sawyer, who has been made sales manager at the main office at Boston.

Buy Old Reliance Plant—W. A. Williams and O. D. Morgan, of Warren, O., have purchased the old plant of the Reliance Machine Co. at that place and will manufacture motor cars. They also will act as agents for the Maxwell.

Brezina Back in Hartford—Frank A. Brezina, formerly assistant purchasing agent of the Electric Vehicle Co. during Milton J. Budling's regime, and later with the Locomobile company of Bridgeport, has become affiliated with the Pratt & Cady Co., of Hartford, Conn.

Change in Pittsburg—The Imperial Motor Co., of Pittsburg, Pa., has been succeeded by the McAlister Motor Car Co. The latter firm is composed of R. P. and William J. McAlister and is located at 5906 Penn avenue. The new concern will continue to handle the Cadillac.

Columbus Factory Opens—The Inst Lighter Co., recently organized in Columbus, O., to manufacture a patent lighter for motor car use, has opened a factory and office on East Main street. The patent is for the purpose of lighting headlights without leaving the seat by means of a valve and electric spark. Fred C. Barger is president and W. H. Gardner is general manager.

New Studebaker Building—The Denver branch of the Studebaker Automobile Co. will be housed in a completely equipped salesroom before the New Year. The old Palace stable on Cheyenne street, near Broadway, and in the heart of the row, is being dismantled to make way for the erection of the new Studebaker building. In the construction of the first and second floors there will not be any posts, the floors and roof being carried on heavy steel girders. The front will be gray pressed brick, plate glass with a heavy cornice. The first floor will be used for offices and salesroom, and the building will be equipped with electric elevators. At present the building will consist of two stories and basement, but it will be constructed so two or more stories may be added as the demands of the company require.

Paxtons Take Chalmers—J. H. and M. H. Paxton will handle the Chalmers-Detroit cars in Walla Walla, Wash.

Lake Company Premier Agent—The Premier is now represented in Kansas City by a new concern, the Lake Motor Car Co., which is sharing quarters with the Moon agency at 3320-3322 Main street.

Preliminary Steps Taken—A preliminary certificate of the dissolution of the Bristol Engineering Co., of Bristol, Conn., which business will be taken over by the New Departure company, has been filed in the office of the secretary of state.

Denies General Motors Rumor—Officers of the Pierce Motor Co., of Racine, Wis., which manufactures the Pierce car and Pierce motors on an extensive scale, deny the reports that the company has been absorbed by the General Motors Co. The Pierce company some time ago increased its capital stock to $300,000 to go into car manufacturing more extensively.

Irvin Company Expanding—Among the Indianapolis companies that have found need of expansion is the Irvin Mfg. Co., manufacturer of motor car tops. The company is now located in the Industrial building and has begun the erection of a factory building in West McCarty street, near South Capitol avenue, on the old Indianapolis rolling mill property. The building is to be a two-story brick structure, 56 by 140, and will cost $14,000.

Is a Million-Dollar Concern—The Ajax-Grieb Rubber Co., of Trenton, N. J., is now a million-dollar concern. At the annual meeting of the company's directors the annual dividend was declared and it was voted to increase the capital from $400,000 to $1,000,000. An election of officers for the ensuing year also took place and all of the present incumbents were re-elected to the same offices. They are: President, Horace De Lisser; vice-president, William G. Grieb; treasurer, Harry Grieb. With the largely increased capital the company will be in a position to triple its capacity. The work on the new additions to the factory is rapidly proceeding and an immense amount of new machinery has been ordered.

Have Austin Agency—Evans & Warren, owners of the Newton garage, just out of Boston, are now handling the Austin car in eastern Massachusetts.

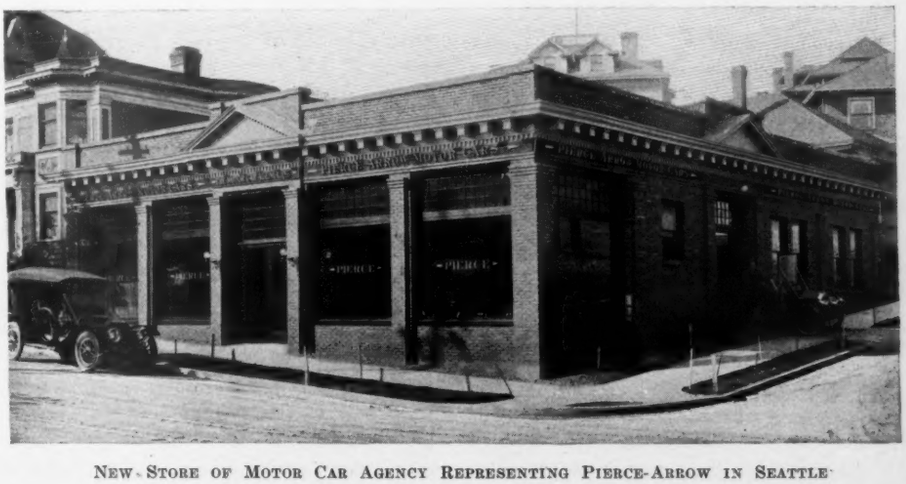
Will Have the Parry—The Petrie-Phillips Automobile Co., of St. Louis, has opened salesrooms at 1127 Olive street. The company was organized recently to handle the Parry car.

Diamond Buys Steam Turbine—The Allis-Chalmers Co., of Milwaukee, Wis., has shipped a steam turbine of 1,250 kilowatt capacity to Akron, O., for installation in the power plant of the Diamond Rubber Co.

Subagents Appointed—Subagencies have been placed by C. Roy Clough, manager of the Columbus branch of the Charles Schiear Motor Car Co., for the Hupmobile for 1910 as follows: Newark, G. D. Heisy; Springfield, L. E. Bauer; Greenville, Swope Music Co.; Dayton, A. H. Pearson, at Central Garage.

Another St. Louis Concern—The General Motor Car Co., Ltd., is a new St. Louis corporation. The firm will at present occupy quarters in the Third National Bank building. J. H. Hutchinson is president, H. C. Gottfried, vice-president, and C. H. Smith secretary. The company will handle the Hupmobile and the Chase motor truck. Salesrooms will be opened as soon as a location can be arranged.

Toledo Garage Enlarging—The Twenty-first street garage, of Toledo, is about to erect a large addition to its building, the step being made necessary by the large increase in the Detroit electric department of its business. The new building, which will adjoin the present structure, will front 80 feet on Twenty-first street and have a depth of 220 feet. The rear portion will be two stories high and will contain the repair shop. As soon as the new portion is under roof it is the intention to give the present garage over entirely to the display, storing and caring for electric cars. A. B. Hanson, formerly local sales manager for the Pope Motor Car Co., has been put



NEW STORE OF MOTOR CAR AGENCY REPRESENTING PIERCE-ARROW IN SEATTLE

in charge of the Detroit electric business and will devote his entire time and energies to the sale of this car.

Hall Is Appointed—L. H. Hall, of Wausau, Wis., has been appointed district agent for the Chalmers-Detroit and Hudson.

Is Mitchell Appointee—Frank E. Jarvis, traffic manager for the C. I. Shoop Medicine Co., Racine, Wis., has been appointed chief purchasing agent for the Mitchell Motor Car Co., of Racine.

Big Garage for Butler—The Atwell Automobile Co., of Butler, Pa., has broken ground for a large garage and repair shop to cost $25,000. The company has exclusive agency for the Oldsmobile and Cadillac.

Maxwell Building in Columbus—The Maxwell-Briscoe Motor Co. is to open a store in Columbus, O., in a new building at 62 East Spring street. Columbus will be made a distributing point for the line of cars manufactured by the concern.

New Slate Elected—The Kinsler-Bennet Co., of Hartford, Conn., engaged in the manufacture of universal joints for motor car use, is now under the management of the following officers: President, J. McA. Johnson; general manager, G. B. Kinsler; treasurer, J. McA. Johnson; secretary, Shiras Morris; directors, the officers above mentioned and Clarence E. Whitney and John F. Forward.

Starts at Wichita—Wichita, Kan., is to have a new garage and general sales and distributing agency. The new company is the Union Auto and Sales Co., and the incorporators are J. D. Puterbaugh and C. W. Shriver, of Benton Harbor, Mich., and W. D. McNichol, of Wichita. The company has the agency for the Haynes and Parry cars for all of the state of Kansas and fifteen counties in Oklahoma. The garage will be two stories high and will cost $12,000.

Stock Is Over-Subscribed—The enthusiasm of Toledo capitalists over the Ohio Electric Car Co. was demonstrated recently when the first meeting of stockholders was held and it was discovered that the stock of the company had been considerably over-subscribed, notwithstanding the fact that no stockholder was permitted to take over $5,000 worth of stock. The capital stock was subscribed by local people, the following being the owners: A. M. Chesbrough, J. B. Bell, Otto Marx, H. P. Dodge, George S. Mills, H. E. Marvin, E. D. Scheble, Frank Chesbrough, T. J. Watson, F. J. Reynolds, M. V. Barbour, F. H. Dodge, Rathbun Fuller, E. W. Baumgardner, F. D. Suydam, Jr., C. M. Foster, T. W. Childs, George Shaw, R. R. Lee and G. W. Dodge. The office and works of the company are located at the Milburn Wagon Co. A large number of body-workers are already at work on the closed bodies and it is stated on fairly reliable authority that a body-making department will be added to the Milburn Wagon Co. plant, which will build bodies for gasoline tourings cars and limousines as well as for electrics.

Building at Bellingham—The Long estate of Bellingham, Wash., will shortly construct a large garage at 206 Prospect street, that city.

Warren Goes to Philadelphia—Charles A. Warren, formerly Stoddard-Dayton agent at Kingston, N. Y., has joined the sales department of the Stoddard-Dayton branch house in Philadelphia.

Many on Rambler Pay Roll—Thomas B. Jeffery & Co., of Kenosha, Wis., today employ the largest number of workmen in their history. The pay roll contains 1,155 names, or 200 more than the high-water mark.

Has a New Store—The Nolan-Rieke Motor Car Co., of Kansas City, the new distributor of the Stevens-Duryea, has established temporary quarters today at 1706 and 1708 Main street. A permanent home is soon to go up.

Asks For Ambulance—Sheriff Herman E. Franke, of Milwaukee county, Wis., has asked for an appropriation for the purchase of another motor car, with special ambulance body. Mr. Franke deems a motor ambulance to be of more necessity than a patrol car and his request will doubtless be granted at once.

Murray Is Re-Elected—The Automobile Dealers' Association of Pittsburg has once more elected W. N. Murray, of the Standard Automobile Co., as president. The other officers are Frank Saapt, vice-president; J. K. McKeogh, secretary, and G. P. Moore, treasurer. The club is starting its arrangements for a third show.

Building $10,000 Addition—The Hokanson Automobile Co., of Madison, Wis., which recently increased its capital stock and accepted additional stockholders, has commenced work on a $10,000 addition to its big garage in the Wisconsin capital. This will give the concern the largest garage and salesroom in Wisconsin outside of Milwaukee. Every convenience will be provided. An accessory department will be added. The extension will be ready about January 1.

Surprise For Sheldon—A clever stunt was that pulled off last Thursday night, when a half-hundred Premier owners in Philadelphia gave a dinner to Allan Sheldon, president of the Motor Co., local Premier agent. Mr. Sheldon was unaware that he was to be so honored and accepted an invitation to accompany Treasurer H. E. Grant home to dinner. Entering the latter's car, Sheldon was startled, on arriving opposite the Majestic, to have Grant drive up on the sidewalk, through the open door and down a carefully prepared runway into the banquet room in the Viennese grotto of the huge caravansary. Here were gathered half a hundred Premierites and their wives, sisters and cousins. After discussing a lengthy menu several of the diners made felicitous addresses in praise of the Premier agent and all his numerous virtues.

Atwood Will Handle Electrics—Arrangements have been made with the Atwood Automobile Co., of Toledo, O., to handle the product of the Ohio Electric Car Co.

Removes to Washington—L. Isenberg, a member of the firm which operates the Roman Automobile Co., of Philadelphia, has gone to Washington, D. C., to manage that concern's recently-opened branch in that city.

Berger Joins Premier Agency—Tom Berger, who has on many occasions piloted the Oldsmobile to victory on track and road, has joined the sales department of the Motor Co., Philadelphia agent for the Premier car.

To Increase Output—The Waukesha Motor Co., of Waukesha, Wis., is moving into its new plant at Keeley and St. Paul avenues, Waukesha, and will begin operations there about November 1. The output will be increased.

Handling the Buick—The Superior Motor Co. has been organized at Calumet, Mich., to handle the Buick in the Calumet district. The Herla building in Laurium is being remodeled for show rooms and garage. A repair department will be installed.

Michigan Appointments—H. P. Clauson, of Calumet, Mich., has been appointed district agent for the Studebaker and allied lines. The Wieder Harness Co., of Calumet, Mich., will handle the Maxwell. The Michigan Garage Co., Sixth street, Calumet, Mich., has taken the agency for the Chalmers-Detroit.

Franklin Statistics—For the year ending September 1, 1909, 864 freight cars have been loaded with motor cars and sent out from the factory of the H. H. Franklin Mfg. Co. Incoming freight cars have numbered 598. The motor car shipments had a total weight of 7,336,726 pounds. Shipments made, other than those of motor cars, numbered 26,518. Merchandise inbound aggregated 20,822,712 pounds and outbound 1,335,163 pounds. The freight charges on motor cars totaled $67,000.

News From the Northwest—The Firestone car is now represented in Portland, Ore. The local agency has secured garage room with the Graham Motor Co. at Fifteenth and Washington streets. Neate & McArthur have taken the Portland agency for the Locomobile. They also have the agency for the Oakland. The Baldwin Plumbing Co., of Klamath Falls, Ore., has recently opened a garage on West Main street of that city. A. E. Tunnecliffe and W. A. Halliday have recently incorporated at Baker City, Ore., and will handle the Buick and Hudson. The White Motor Co. of Oregon has been organized by C. A. Eastman and G. S. Brackett to handle White steam and gas cars. This is a private enterprise owned by Messrs.

Eastman and Brackett and is not connected in any way with the White company.

Fire at Massillon—The garage of William F. Wagner, of Massillon, O., was gutted by fire recently causing damage of $5,000.

Cooper Buys Out Morton—Robert W. Cooper has taken over the lamp and radiator business of F. U. Morton in Pittsburg and has established himself at 5909 Baum street.

Taxicabs in Lexington—The Bayless Motor Co., of Lexington, Ky., has established a taxicab line using six Ford taxicabs, three of which were purchased last week. Three were secured about 3 weeks ago and the demand has increased sufficiently so that the others were necessary to meet it.

Earl & Co. Progressive—H. Earl & Co., Fairfield, Iowa, distributors for the Schacht and representing the Moline in southeastern Iowa, have closed a contract for a new two-story garage, equipped with elevator, to be erected and ready for occupancy by January 1. They also will open a branch house at Des Moines at an early date.

Represents Pierce in Seattle—The Motor Car Agency is the new Pierce-Arrow dealer in Seattle. The building it occupies is a new one which has just been put up for its use and is a good illustration of the trend along the coast, where the tendency during the past year has been to erect substantial buildings for use as motor car salesrooms and garages.

Lexington Will Move—Despite efforts of the Lexington Commercial Club to keep the plant in Lexington, Ky., the officials of the Lexington Motor Car Co. announce that the factory will be moved to Connersville, Ind., in January. Dr. F. F. Bryan, formerly president of the company, sold his controlling interest to J. W. Johnson, of Connersville, and he was in turn elected president of the company at a recent meeting of the board of directors. The company will refund a bonus of $1,600 to the Commercial Club which was paid about a year ago when the plant was built.

New Pittsburg Concerns—Two of the largest garages in Pennsylvania are soon to be built on Grant boulevard, Pittsburg, Pa. One will be owned by the Standard Automobile Co., which has just awarded a contract for a four-story reinforced concrete and steel construction building, 215 by 70 feet, at the corner of Bellefield avenue. The first floor will be the salesroom, tire department, garage and general offices. The second floor will be a mezzanine for the stock and trimming department. The third floor will include the upholstering, woodworking and painting departments. On the fourth floor will be the tool, repair, blacksmith and cleaning departments. The other garage will be situated at Grant boulevard and Craig street. It will be four stories high and 135 by 136 feet. The cost will be $50,000 and the building will be occupied next March by a new taxicab company.

Move to Portland—The Rohrbacker Automatic Air Pump Co. has moved from Blaine, Wash., to Portland, Ore., the growth of the business necessitating the moving of the entire plant.

New Home Nearly Ready—The Keystone Automobile Co., of Pittsburg, has nearly completed its big sales room and office building on Center avenue. The company will handle the Stoddard-Dayton, Columbus electric, Welch, Velie and the Rapid next year.

In Temporary Quarters—The Buick company has opened an office in Omaha, Neb., under the management of Lee Huff The company has a temporary office at 2010 Farnam street and is renting a storeroom pending the completion of the new garage which it will occupy.

Seeks Larger Quarters—The Dixon C. Walker Motor Car Co., which handles the Studebaker car in Baltimore, is erecting a garage at Charles and Twentieth streets. The structure will face about 175 feet on Charles street and will extend along Twentieth street for a distance of 80 feet. The Walker company is just now in the small quarters at 1917 North Charles street which has proven inadequate for the company's increased business.

Making Mineral Rubber Tire—With mineral rubber compounded in a new manner the Hydro Carbon Mfg. Co., which is backed by Samuel Newhouse, has made a new style of motor car tire. The tires are made from a combination of gilsonite and elaterite and other materials which abound in Utah, which for several years have been experimented with by persons who had aspirations to make a mineral rubber as good in quality as the vegetable variety. The new product, it is said, may also be used for other rubber goods of various kinds.

Engineers' Winter Meeting—The meetings of the Society of Automobile Engineers have each year more decidedly proven the value of this society to the various professional and other interests identified with the self-propelled vehicle. Among the subjects that discussion at the winter meeting has been asked for are: Standardization of pneumatic tires; taxicabs, requirements and operating cost; kerosene carbureters; railway motor cars; drawing room systems; truck tires; valves in head versus T head; alcohol as fuel in internal combustion motors; silencer; radiator, design and efficiencies; critical temperatures, cooling curves of alloy and other steel; two-cycle motor efficiency and results; journal leads in transmission gears; placing society on more professional basis; efficiency of spur, bevel worm gears and universal joints; relative efficiency of four-wheel front and rear drive of commercial vehicles; detachable versus demountable rims, combination rim; commercial vehicle depreciation. No doubt many will be present during one or the other of this winter's shows at New York.

Smith a Packard Agent—D. M. Smith has recently taken the agency for the Packard cars in Portland, Ore. He formerly was associated with the Studebaker company.

Gould in for Himself—A. J. Gould, having sold his interest in the firm of Rykert & Gould, of Sycamore, Ill., will start a garage and repair shop of his own. He will sell new and secondhand cars.

Rocoit Nearly Ready—Carl Lipman, of Rockford, Ill., who has started the manufacture of a new car named the Rocoit, will have his first model ready for demonstrations within a short time.

Tire Agency Moves—The G & J tire agency in Denver has been removed from 1541 Cleveland place to 204 Sixteenth street. Manager Joseph W. Billow was compelled to move to larger quarters to accommodate his growing business. The old location will be used as a salesroom for the Mitchell and Rambler cars.

Oppose Sale of Plant—Stockholders of the Oscar Lear Automobile Co., of Springfield, O., have been informed of an attempt on the part of the General Motor Car Co., of Detroit, to purchase the plant of the concern, which now is being operated by a receiver. Citizens of Springfield are making every effort to prevent the sale for fear of losing the factory, which is one of the large industries of that city. E. S. Kelly, of Springfield, is trying to secure control. He says if given control he will enlarge the plant.

Oil Law Sustained—The Wadhams Oil and Grease Co., of Milwaukee, Wis., lost its suit to have the Wisconsin oil inspection law declared unconstitutional. The company objected to the payment of a fee of 10 cents a barrel for the inspection, claiming that this is confiscatory. A suit brought against Thomas B. Jeffery & Co., Kenosha, Wis., to enforce the law was dismissed recently, and until the supreme court is able to make a decision on the Milwaukee case the status of the law will be in doubt. The law covers inspection of gasoline, kerosene and lubricants.

Chief Chooses P & S—The Palmer & Singer has been selected by Chief Thomas A. Clancy, of the Milwaukee fire department, for his official use. The common council recently appropriated $4,500 for a new car and the chief will be able to turn part of this back. It may be called a Milwaukee-made car, as nearly all parts are made by the A. O. Smith Co. for the New York company. The Mitchell touring car, which has been used by Chief Clancy for more than 2 years with good results, will now be used by First Assistant Chief Linkman. It is Mr. Clancy's idea to equip every assistant chief with a roadster or touring car to replace the horse and buggy.

Brief Business Announcements

Cleveland, O.—Frank E. Stiverson has resigned from the Ohio sales department of the White Co.

Gaffney, S. C.—A garage is to be opened here in the near future by Z. A. Robinson. Daniel Folts has been engaged as manager of the business.

Geneva, N. Y.—Baker Brothers have leased the King livery stable on Castle street and intend opening it as a garage, showroom and repair shop on January 1.

Newark, N. J.—Ground has been broken for the erection of a garage for Albert J. Simpson. The new building is to be located at 173 Somerset street, and will cost about $6,000.

Nashville, Tenn.—Howard Cregor & Co. have leased the building at 135 Third avenue north and will fit it up as a garage. This company is agent for the Chalmers-Detroit and Hudson.

Kansas City, Mo.—The Long-Histed Motor Car Co., which is the local agent for the American Simplex and Brush, expects to be located in its new quarters at 1522 Grand avenue within the next week.

Dover, Del.—Articles of incorporation have been filed by the International Condenser Co., of Wilmington, with a capital stock of $1,000,000. The new company is to manufacture and deal in motors of various kinds.

Kansas City, Mo.—The Kansas City Rapid Motor and Transportation Co., which was recently incorporated with a capital stock of $50,000, has opened up headquarters at 1420 Woodland avenue, The company is to represent the Rapid, American and Westcott.

Newport, R. I.—The Foss-Hughes Motor Car Co. has announced that its new branch in this city, which is to be located on Bellevue avenue, adjoining the Casino, is to be open for business on May 1, 1910. This branch is to be solely devoted to the interests of the Pierce-Arrow.

Brooklyn, N. Y.—The Standard Auto and Sales Co., which has the local representation for the National, Empire and the Oakland, has leased the old building of the Kings County Wheelmen's Club at 1281 Bedford avenue. George M. Cooke is to act as general manager of the company.

Trenton, N. J.—Articles of incorporation have been filed by the Suburban Motor Transit Co., which is to have a capital stock of $100,000. J. A. McClary has been elected manager of the new company and will make his headquarters at Rahway. The new company is to operate a transportation system between Elizabeth and South Amboy. Four motor cars are to be used, carry thirty passengers each, and it is the intention of the company to operate a public taxicab service as well as furnishing cars for hire.

St. Louis, Mo.—The Victor Automobile Mfg. Co., of St. Louis, is soon to be installed in its new plant at Boyle avenue and Papin street.

Trenton, N. J.—The Royal Garage and Taxicab Co., of Atlantic City, has been incorporated with a capital stock of $50,000, by P. D. Royal, W. H. Cann and C. F. Sesinger.

Greenwood, S. C.—John I. Chipley is about to erect a new garage in the rear of the buildings owned by him and known as the Chipley block. The new garage is to cost $10,000.

San Francisco, Cal.—The Continental Motor Co. has leased for a term of years the garage in course of erection at Van Ness avenue and McAllister street.

Detroit, Mich.—The Ford Motor Co. has established four direct factory branches; one in the south, one in Canada and two in Europe. The southern branch, which will be in Atlanta, Ga., is to be under the management of M. C. Hule, who has been the southern agent for the company for some time past. George A. Malcolmson is to be the Canadian manager, his headquarters being in Winnipeg, Manitoba. A branch has also been established in London, while still another European branch is under consideration.

RECENT INCORPORATIONS

Rahway, N. J.—Spencer Motor Co., capital stock $125,000. Incorporators, C. G. Willis, Henry Albissner and A. G. Spencer.

Jersey City, N. J.—Maxwell-Briscoe Indianapolis Co., capital stock $2,000; to engage in the manufacture of motor cars. Incorporators, S. A. Anderson, L. U. Gunther and H. O. Coughlan.

Buffalo, N. Y.—Buffalo Maintenance Co., capital stock $5,000; to manufacture motor cars, power wagons and motor boats. Incorporators, Harold Kaiser, J. H. Preston, Jr., and Charles Hoxie.

New York.—Rambler Automobile Co., capital stock $25,000; to manufacture motors, engines, machines, machinery, wagons, boats, cars, etc. Incorporators, T. H. Beardsley, G. Tiernan, F. H. Purcells, all of New York city.

Dover, Del.—Automobile Owners' Service Co., capital stock $50,000. Incorporators, I. L. Parker, E. L. Abbott and Albert Harbaugh, all of Chicago.

Newark, N. J.—Newark Auto and Engineering Co., capital stock $25,000; to engage in the manufacture of motor vehicles, engines, machinery, etc. Incorporators, Alexander Traudt, Sr., Alexander Traudt, Jr., and Jeanette Traudt.

Plainfield, N. J.—C. B. Brokaw Auto Co., capital stock $20,000; to manufacture motor cars and other vehicles. Incorporators, C. B. and A. F. Brokaw and W. B. Hopping, the latter of New York city.

Ithaca, N. Y.—Fritts & Moore Co., capital stock $5,000; to deal in motor cars. Incorporators, H. L. B. Moore, E. M. Fritts and U. Clark.

New York.—Midland New York Co., capital stock $50,000; to manufacture motor car engines, cars, carriages, boats and vehicles. Incorporators, M. Boyle, A. F. Britton and E. M. Boyle.

Beloit, Wis.—The Vale Automobile Co. has been incorporated with a capital stock of $10,000, by H. M. Vale, J. W. Mendall and T. D. Woolsye.

Austin, Tex.—The Dycus Automobile Co. of Dallas has been incorporated with a capital stock of $3,000, by N. D. Dycus, H. T. Leslie and Oliver Nichols.

Hartford, Conn.—J. McA. Johnson has acquired a controlling interest in the Kinsler-Bennett Co., of this city, and has been elected president and treasurer of the concern.

Kansas City, Mo.—The E. R. Hunnewell Motor Car Co., of 3816 Main street, has closed a contract with the Lozier company for the representation of that car during the coming season.

Los Angeles, Cal.—The Angelus Motor Car Co. has filed articles of incorporation with a capital stock of $25,000. L. L. Brentner, Jr., S. N. Dutcher and C. W. McCabe are the incorporators.

Kansas City, Mo.—The Genung Motor Car Co. has taken the old quarters of the Tebeau Motor Car Co. at 1716 Grand avenue and is to act as agent for the Falcar throughout Kansas and Kansas City.

Cleveland, O.—The Barger Auto Co., which has taken the local agency for the Cadillac, has leased quarters in the new building now being erected on Euclid avenue, near East Seventeenth street.

Albany, N. Y.—The Fifth Avenue Garage Co., of New York city, has been incorporated with a capital stock of $20,000, to operate a garage. The incorporators are John Harnett, W. A. Barett and C. M. Kittrell.

Utica, N. Y.—The Williams property, 6-14 Devereux street, has been sold at auction and has been bought in by George H. Spitzli, of the Spitzli Mfg. Co., for $29,600. Mr. Spitzli says it is his intention to fit up the ground floor as a garage.

Buffalo, N. Y.—The Riverview Bronze and Mfg. Co. has been incorporated with a capital stock of $50,000, to manufacture vehicles, engines, machines, cars, carriages, wagons and trucks. The incorporators are P. F. Woods, R. L. Dearnorf and W. R. Mample.

Brooklyn, N. Y.—Bishop, McCormick & Bishop, who have been acting as Brooklyn agents for the Ford cars for the past 3 years, have just signed a contract with the Ford company, whereby they are appointed sole representative for the company throughout the entire Long Island territory and have the same standing as a direct factory branch.